PROGRAMMABLE
POLYPHONIC
SYNTHESIZER

# MODEL AX80

0092

SECTION 1 SERVICE MANUAL
SECTION 2 PARTS LIST
SECTION 3 SCHEMATIC DIAGRAM
SECTION 4 SERVICE BULLETIN

## ABBREVIATIONS FOR THE SERVICE MANUAL MODEL AX80

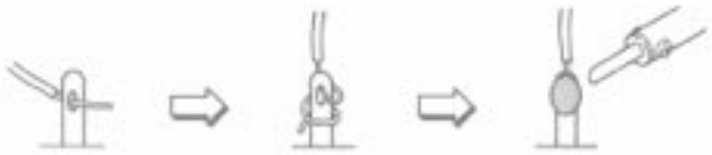
| ABBREVIATIONS | EXPLANATION |
|---|---|
| CTL | ConTroL |
| D/A | Digital to Analog Converter |
| DCO | Digital Controlled Oscillator |
| EG | Envelope Generator |
| FLD | FLuorescent Display |
| FREQ | FREQuency |
| HPF | High Pass Filter |
| INH | INHibit |
| INT | INTerrupt |
| KB-CV | KeyBoard Control Voltage |
| LFO | Low Frequency Oscillator |
| MAX | MAXimum |
| MEMO | MEMOry |
| MIDI | Musical Instrument Digital Interface |
| MIN | MINimum |
| MOD | MODulation |
| MP | Memory Protection |
| M.WHEEL | Modulation WHEEL |
| OSC | OSCillator |
| PARA | PARAmeter |
| PRGM | PROGram |
| PWM | Pulse Width Modulation |
| RL | Return Line |
| ROM | Read Only Memory |
| S/H | Sample & Hold |
| SL | Scan Line |
| SW | SWitch |
| THRU | THRoUgh |
| TRANS | TRANSpose |
| VA | Voltage Analog |
| VCA | Voltage Controlled Amplifier |
| VCF | Voltage Controlled Filter |
| VR | Variable Resistor |
| VO | VOice |

## SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 Mohms, but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be more than 2.2 Mohms (ground terminals, microphone jacks, headphone jacks, line-in-out jacks etc.)

## PRECAUTIONS DURING SERVICING

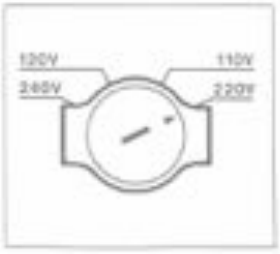
1. Parts identified by the ⚠ symbol parts are critical for safety.
   Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing micromatch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

### Voltage conversion

Models for Canada, USA, and Japan are not equipped with this facility. Each machine is preset at the factory according to its destination, but some machines can be set to 110V, 120V, 220V or 240V as required.
If your machine's voltage can be converted:
Before connecting the power cord, turn the VOLTAGE SELECTOR located on the bottom panel with a screwdriver until the correct voltage is indicated.



# SECTION 1

# SERVICE MANUAL

TABLE OF CONTENTS


I. SPECIFICATIONS ..... 4
II. DISMANTLING OF METHOD ..... 5
III. CONTROLS AND UNIT CONNECTIONS ..... 6
IV. THE KEYBOARD RELATIONSHIP TO EQUALLY TEMPERED SCALE FREQUENCES AND MUSICAL NOTATION ..... 8
V. PRINCIPAL PARTS LOCATION ..... 9
VI. AX80 IC BERSIONS ..... 9
VII. ADJUSTMENT PROCEDURE FOR AX80 VOICE PCB ..... 11
1. PREPARATIONFORTHE ADJUSTMENT ..... 11
2. OFFSET ADJUSTMENT (ADJUSTMENT OF SAWTOOTH WAVE LEVEL ON OCO-2) ..... 11
3. ADJUSTMENT OF SAWTOOTH WAVE LEVEL ..... 13
4. RESONANCE FREQUENCY ADJUSTMENT ..... 14
5. LOADING A+B BANK DATA AND CONFIRMATION ..... 14


0u92


This Manual is FOR INTERNAL USE ONLY and must not be made available to unauthorized personal. No part of this manual may be reproduced in any form without permission from AKAI-ELECTRIC CO., LTD., Tokyo, Japan.

# I. SPECIFICATIONS

| | |
|---|---|
| Key | 61 Key C scale |
| Voice | 8 voice – 16 OSC, 8 Sub Osc |
| Key touch sense | VCA + VCF |
| Sample sounds | 32 Sounds (Factory programmed) |
| Memory bank | A and B, each 32 sounds (User programmable) |
| OSC-1 | 1. FREQ RANGE (16',8',4')<br>2. WAVE (OFF, ⋀, ⎍, MIX)<br>3. PW (DUTY 50% to 90%)<br>4. PWM speed (Rate 0.1 to 20Hz)<br>5. SUB OSC (ON,OFF)<br>6. OSC - 1 Level |
| OSC-2 | 7. FREQ RANGE (16', 8' , 4', 2', adjustment by 100 cent steps)<br>8. Detune (± 36 cents)<br>9. WAVE (OFF, , , MIX)<br>10. CROSS MOD (OFF, 1, 2)<br>11. EG depth<br>12. EG select (VCF, VCA)<br>13. OSC-2 Level |
| VCF | 14. Cut off freq (less than 10Hz, more than 20Hz)<br>15. Resonance<br>16. EG depth<br>17. Key follow (0 to 150%)<br>18. Key velocity<br>19. H.P.F. |
| LFO | 20. 33, 37, Depth<br>21. 34, 38, Speed (0.1 to 20Hz)<br>22. 35, 39, Delay (0 to 5 sec.)<br>23. 36, 40, WAVE ( ⎍ , ⋀ , ⋀ , ⋀ )<br>24. LFO select (OSC-1, OSC-2, VCF) |
| EG | 25. 41 Attack<br>26. 42 Decay<br>27. 43 Sustain<br>28. 44 Release<br>29. 45 Key follow<br>30. EG select (VCA, VCA/VCF, VCF)<br>Two independent EG systems enable the following range of settings to be achieved.<br>VCA: 25 29<br>VCA, VCF: 25 29<br>VCF: 41 45<br>31. Key velocity,<br>32. Level |
| Tune | ± 50 cents |
| Wheel | Modulation (OSC, VCF)/Pitch bend (± 1200 cents in 100 cent steps) |
| MIDI | Key number, Key velocity, Pitch bender, Program change, Control change (Modulation wheel, Sustain SW), Transmit/Receive channel select |
| External jack | Audio out 0dBv (IV) max (Monophonic), Headphone (Stereo), Sustain pedal, Program up pedal, Tape memory (IN, OUT), MIDI jacks (IN,OUT,THRU) |
| Dimensions | 1,018 (W) x 102 (H) x 392 (D) mm (40.1 x 4.0 x 15.4 inches) |
| Weight | 15.2kg (33.4 lbs) |

* For improvement purposes, specifications and design are subject to change without prior notice.

# II. DISMANTLING METHOD

## 2-1. How to open the Front Cover

Fig. 2-1

Fig. 2-2

1) Remove nine screws in Fig. 2-1.

2) Open the Front Cover as shown in Fig. 2-2.
(Be careful not to damage the wires holding the Front Cover while it is opened)

## 2-2. How to dismantle the Keyboard Block and bend Panel Block. (Refer to Fig 2-3)

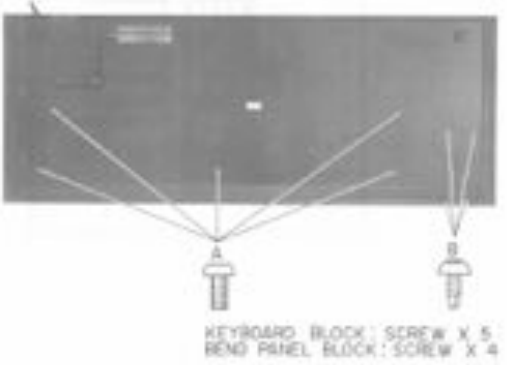



Fig. 2-3

1) Remove the screws in group A (5 screws) for the Keyboard Block, and the screws in group B (4 screws) for the Bend Panel Block (Refer to Fig. 2-3)

2) Then disconnect the connectors P3 on CPU PCB for the Keyboard Block and P1 & P2 for the Bend Panel Block. (Refer to Fig 2-2)

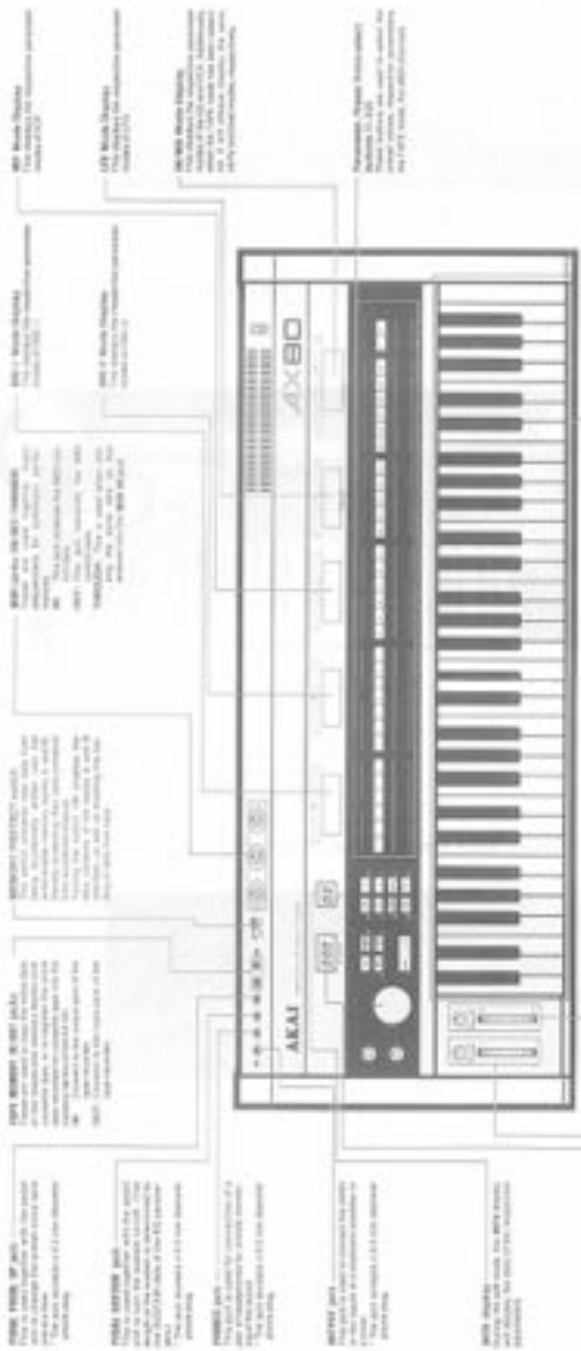



Fig. 3-1

Fig. 3-2

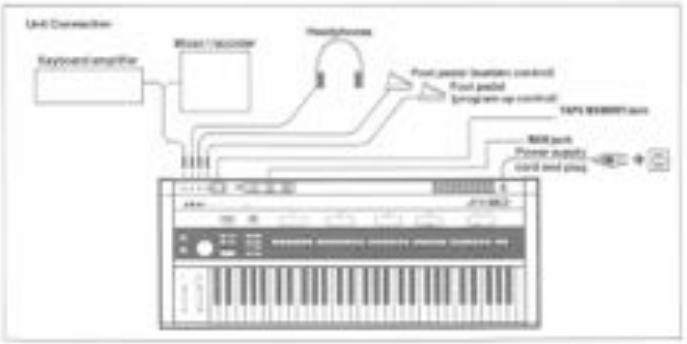
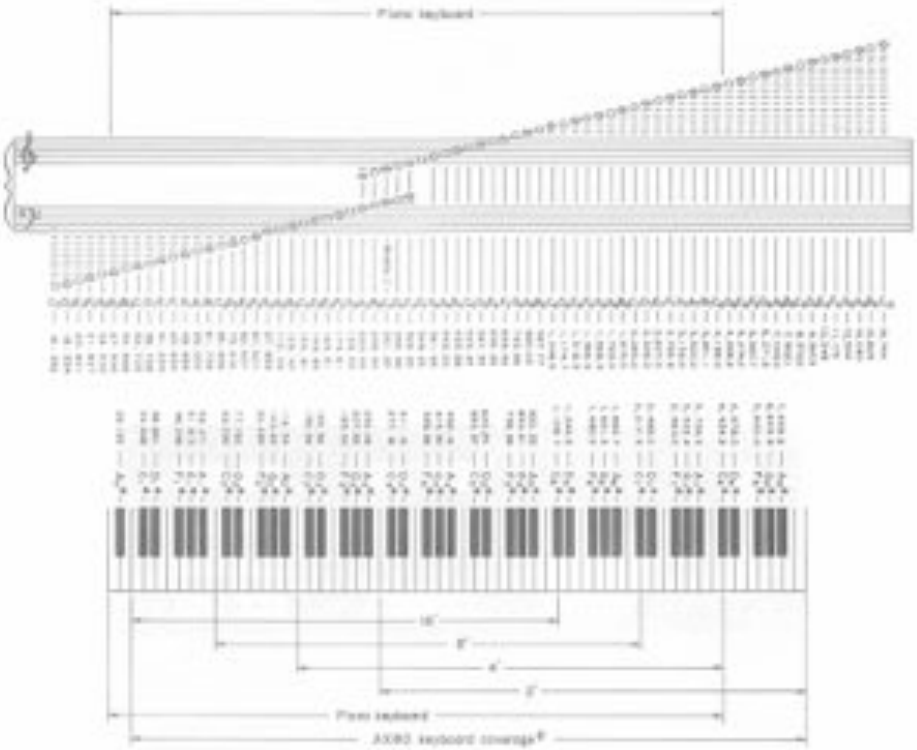


Fig. 3-3

# IV. THE KEYBOARD RECATION-SHIP TO EQUALLY TEMPERED SCALE FREQUENCES AND MUSI-CALNOTATION.




*Keyboard Coverage
by Frequency Range
Setting (E) or (F)

16' : $C_1 \sim C_4$
8' : $C_2 \sim C_5$
4' : $C_3 \sim C_6$
2' : $C_4 \sim C_6$
Piano: $A_0 \sim A_6$

Fig. 4-1

# V. PRINCIPAL PARTS LOCATION

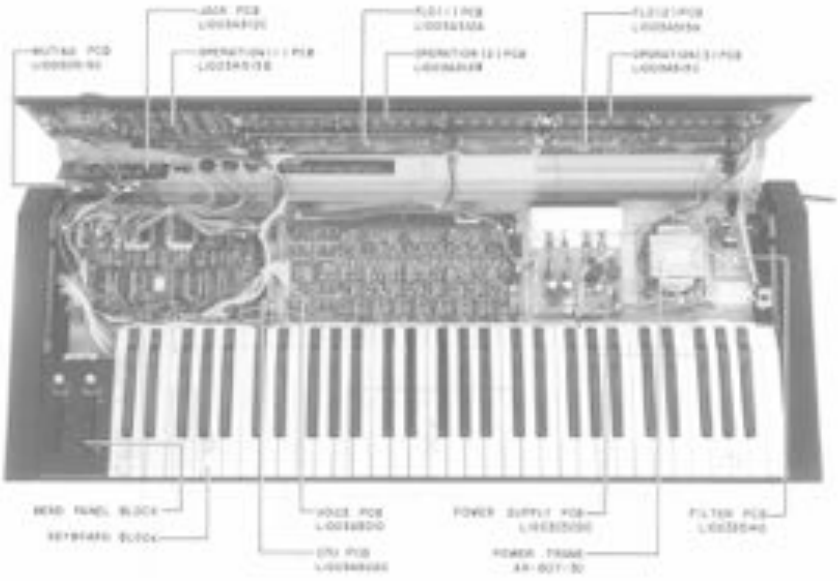


Fig. 5-1

# VI. IC VERIONS

1) There are three versions of AX80s by using different types, lot numbers and programs of ICs.
2) These IC combinations must be used for the optimum results.
3) Three combinations.

| ROM IC4 (μPD2764 D) in CPU PCB | Voice IC 106-806 in VOICE PCB (ECM3372) | |
|---|---|---|
| Program Versions | Types | Lot Numbers |
| I | B | 8425 |
| J | B | 8427 |
| K | C | N/A |

4) How to distinguish the differences.

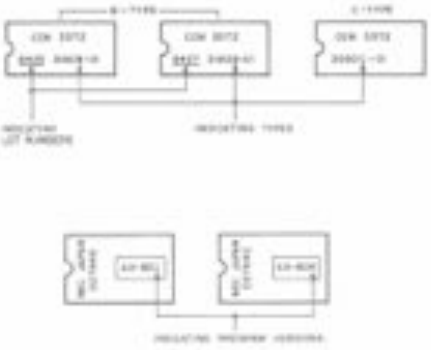


Fig. 6-1

5) Location of the ICs (Refer to Figs. 6-2 & 7-1).

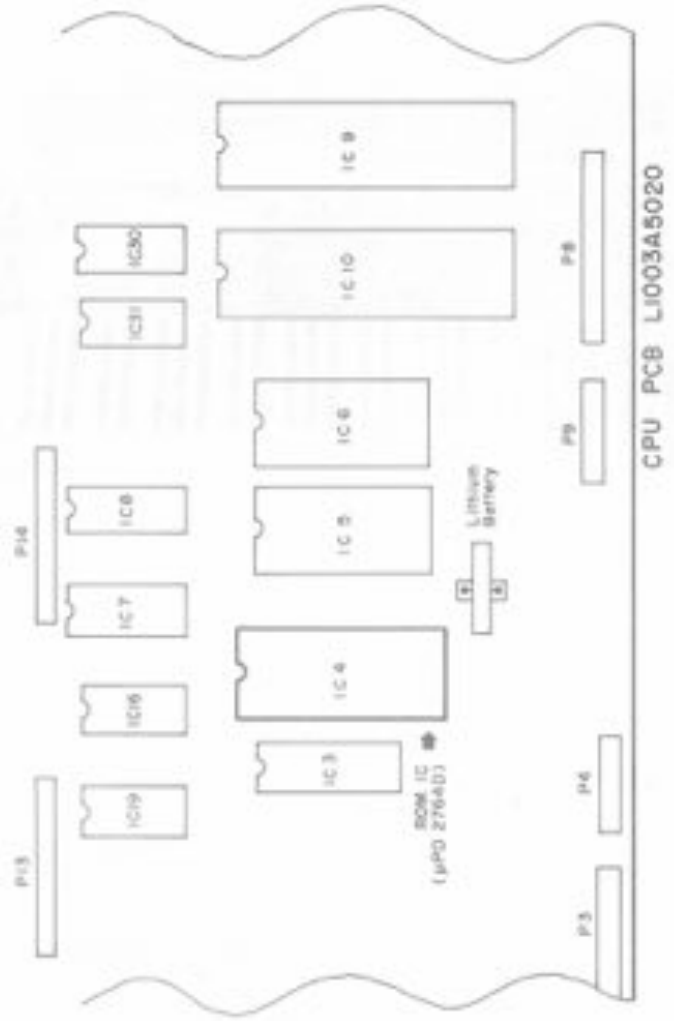



Fig. 6-2

# VII. ADJUSTMENT PROCEDURE FOR VOICE PCB

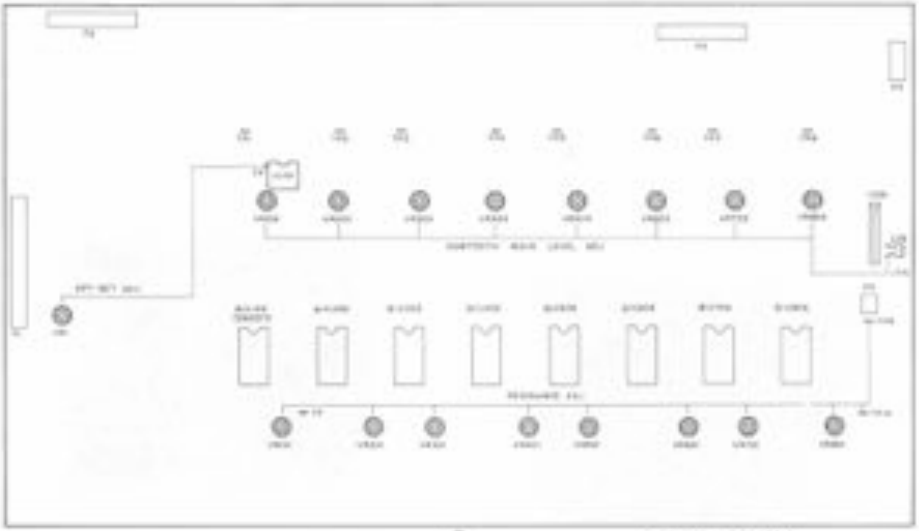


Fig. 7-1

7-1. PREPARATION FOR THE ADJUSTMENT

* It is recommended to save A & B bank data onto a cassette tape, and verify A & B bank data.
* It is required to warm the unit up for 5 minuits before the adjustment of the resonance frequency for each voice.
* Make sure to load A & B bank data from the cassette tape after repair or/and adjustment was completed.

7-2. OFFSET ADJUSTMENT (ADJUSTMENT OF SAWTOOTH WAVE LEVEL ON DCO-2)

1) Turn on the unit, then the unit will be initialized in the PI (Preset 1) mode.
2) Set the unit to Edit mode and set the parameters as follows.

| Parameter Button | Function | Display Data |
|---|---|---|
| 6 | OSC-1 LEVEL | 0 |
| 7 | FREQ RANGE | 16 |
| 8 | DETUNE | 50 |
| 9 | WAVE | 1 |
| 10 | CROSS MOD | 0 |
| 11 | EG DEPTH | 50 |
| 13 | OSC-2 LEVEL | 99 |
| 14 | CUT OFF FREQ | 99 |
| 15 | RESONANCE | 0 |
| 16 | EG DEPTH | 50 |
| 17 | KEY FOLLOW | 0 |
| 18 | KEY VELOCITY | 0 |
| 19 | HPF | 0 |
| 24 | LFO SELECT | 2 |
| 33 | LFO | 0 |
| 30 | EG SELECT | 1 |
| 25 | ATTACK | 0 |
| 26 | DECAY | 0 |
| 27 | SUSTAIN | 99 |
| 28 | RELEASE | 0 |
| 31 | KEY VELOCITY | 0 |
| 32 | LEVEL | 99 |

3)Turn off the Memory Protect SW.
4) Save the above parameters to one of Memory Bank (e.g. B1) and turn ON the Memory Protect SW.
5) Select any Memory Bank or Preset. Do not touch any keys.
6) Select the Memory Bank again where the above parameters are saved (e.g. B1).
7) Connect the oscilloscope probe to IC101 Pin 1.
8) Set the oscilloscope range so that the waveform can be seen clearly.
9) Press one-octave lower C key (C5) from the highest C key (C6) as the 1st key to press.
10) Check peak-to-peak voltage of the waveform.

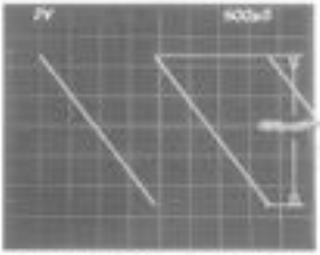


**Fig. 7-2 Output waveform when C5 is depressed.**

11) Connect the oscilloscope probe to Pin 1 of the following ICs and read peak-to-peak voltages.

| | *Key No. | IC No. |
|---|---|---|
| 2nd key | D5 | IC200 |
| 3rd key | E5 | IC300 |
| 4th key | F5 | IC400 |
| 5th key | G5 | IC500 |
| 6th key | A5 | IC600 |
| 7th key | B5 | IC700 |
| 8th key | C6 | IC800 |

* Key numbers are indicated as the FREQ RANGE at "16" setting (See Fig. 4-1).

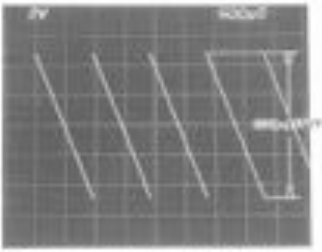


**Fig. 7-3 Output waveform when C6 is depressed.**

12) Determine the average peak-to-peak voltage (i.e. 10Vp-p) from above readings.
13) Connect the oscilloscope probe to IC101 Pin 1.
14) Press the lowest C key (C1) and read peak-to-peak voltage, then change the connection to IC201 pin 1, press the next higher key (D1) and read Peak to Peak voltage in the same manner as the item 11) above.
15) Find the lowest Peak-to-peak voltage and adjust by turning VR1 to that so that this lowest peak-to-peak voltage on this particular voice will be the same as the average peak-to-peak voltage from the item 12.

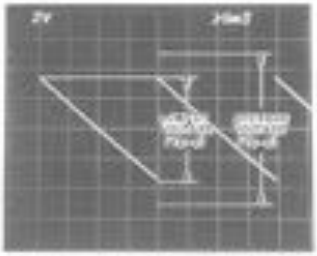


**Fig. 7-4 Output waveform of lowest Peak-to-Peak voltage**

16) If you can not go back to this voice number, simply switch to the other Memory Bank then back to the same bank as the item 6 (e.g. B1).
17) Press the lowest C key (C1) as the 1st key then next higher key until you get the voice you want.
18) Adjust VR1 as same manner as the item 15.

## 7-3. ADJUSTMENT OF SAWTOOTH WAVE LEVEL

1) Turn the power off and on again.
   Do not touch any keys on the keyboard.
2) Select the Memory Bank (e.g. B0) used for the previous adjustment.
3) Set the unit to Edit mode and set the parameters as follows.

| Parameter Button | Function | Display Data |
|---|---|---|
| 1 | FREQ RANGE | 16 |
| 2 | WAVE | 2 |
| 3 | PW | 0 |
| 4 | PWM | 0 |
| 5 | SUB OSC | 0 |
| 6 | OSC-1 LEVEL | 99 |
| 13 | OSC-2 LEVEL | 0 |
| 24 | LFO SELECT | 1 |
| 20 | LFO | 0 |

4) Connect the oscilloscope probe to the Test Point C3(TP) and TP-10 (GND).
5) Press the key from C1 to C2 one by one and adjust by turning VR102 to VR802 for required Voice No.(refer to the table below),so that the duty cycle of the square waveform is 50%.

| VOICE No. | VR No | *Key No. |
|---|---|---|
| 1 | 102 | C1 (Lowest) |
| 2 | 202 | D1 |
| 3 | 302 | E1 |
| 4 | 402 | F1 |
| 5 | 502 | G1 |
| 6 | 602 | A1 |
| 7 | 702 | B1 |
| 8 | 802 | C2 |

* Key numbers are indicated as the FREQ RANGE at "16" setting (See Fig. 4-1)

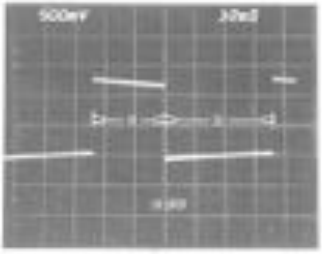


Fig. 7-5 (a)

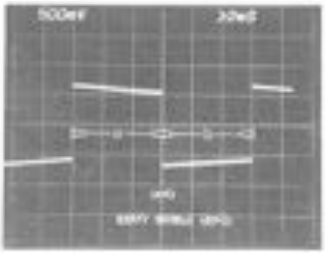


Fig. 7-5 (b)

Square waveform

### 7-4. RESONANCE FREQUENCY ADJUSTMENT

Please refer to the item 5-1 prior to this adjustment.

1) Turn the power off and on again to initialize the setting (in the PI mode). Do not touch any keys on the keyboard.
2) Then set the unit to Edit mode and set the parameters as follows.

| Parameter Button | Function | Display Data |
|---|---|---|
| 6 | OSC-1 LEVEL | 0 |
| 13 | OSC-2 LEVEL | 0 |
| 14 | CUT OFF FREQ | 50 |
| 15 | RESONANCE | 99 |
| 16 | EG DEPTH | 50 |
| 17 | KEY FOLLOW | 0 |
| 18 | KEY VELOCTTY | 0 |
| 19 | HPF | 0 |
| 25 | ATTACK | 0 |
| 26 | DECAY | 0 |
| 27 | SUSTAIN | 99 |
| 28 | RELEASE | 0 |
| 29 | KEY FOLLOW | 0 |
| 31 | KEY VELOCTTY | 0 |
| 32 | LEVEL | 99 |

3) Connect the tuner (e.g. KORG MODEL AT-12) to the output jack with a connection cable for Connect the frequency counter to TP-9 (HOT) and TP-10 (GND).
4) Press the lowest key (C2) and adjust by turning VR01 for Voice 1 to get the reading of A3 # on the tuner (for the frequency counter,reading will be 233Hz).
5) Adjust the other voices in the same manner. Refer to the table below.

| *Key No. | VR No. | Reading | Voice No. |
|---|---|---|---|
| D2 | 201 | A3 # or 233Hz | 2 |
| E2 | 301 | A3 # or 233Hz | 3 |
| F2 | 401 | A3 # or 233Hz | 4 |
| G2 | 501 | A3 # or 233Hz | 5 |
| A2 | 601 | A3 # or 233Hz | 6 |
| B2 | 701 | A3 # or 233Hz | 7 |
| C3 | 801 | A3 # or 233Hz | 8 |

* Key number are indicated as the FREQ RANGE "8" setting (See Fig. 4-1)

6) Go back to the 1st Voice (Press the lowest Key:C2) to check drift of the frequency and readjust if necessary, then check next VOICE No. up to the Voice No.8 as the same manner as the item 5.

### 7-5. LOADING A + B BANK DATA AND CONFIRMATION.

1) Turn off the Memory protect SW.
2) Load and verify A & B bank data.
3) Turn on the Memory Protect SW.
4) Press all the keys of the keyboard one by one to make sure all the keys are functioning with one of the Preset Sound (e. g. P1)
5) Press one of the key of the keyboard and check all the Preset, A and B Bank Sounds (i.e. P1-P32, A1-A32 and B1-B32) to make sure there will be proper sounding output.

## VIII. PC BOARD TITLES & IDENTIFICATION NUMBERS

| PC Board Title | | PC Board Number |
|---|---|---|
| VOICE | PC BOARD | L1003A5010 |
| CPU | PC BOARD | L1003A5020 |
| FLD(1) | PC BOARD | L1003A512A |
| OPERATION(2) | PC BOARD | L1003A512B |
| JACK | PC BOARD | L1003A512C |
| FLD(2) | PC BOARD | L1003A513A |
| OPERATION(1) | PC BOARD | L1003A513B |
| OPERATION(3) | PC BOARD | L1003A513C |
| POWER SUPPLY | PC BOARD | L1003C5090 |
| FILTER | PC BOARD | L1003D5140 |
| MUTING | PC BOARD | L1003D5150 |

## A BANK SOUND DATA

for E-Type KI

* for B-Type IC

| VOICE NO. | OSC 1 | | | | | | | OSC 2 | | | | | | | VCF | | | | | | | | LFO | | | | | | | | | | | | | | | | EG | | | | | | | | VCF | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |
| A1 | 0 | 1 | 99 | 0 | 1 | 99 | 0/10 | 61 | 1 | 0 | 99 | 2 | 32 | 99 | 0 | 10 | 80 | 99 | 28 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 99 | 0 | 12 | 99 | 0 | 1 | 13 | 1 | 99 | 0 | 1 | 99 | 99 |
| A2 | 0 | 0 | 99 | 0 | 1 | 99 | 0/10 | 60 | 2 | 0 | 99 | 3 | 37 | 99 | 33 | 99 | 99 | 0 | 33 | 1 | 52 | 0 | 0 | 0 | 80 | 0 | 0 | 0 | 1 | 0 | 12 | 0 | 11 | 99 | 0 | 1 | 19 | 0 | 99 | 0 | 1 | 97 | 99 |
| A3 | 0 | 0 | 76 | 0 | 0 | 90 | 0/7 | 59 | 0 | 0 | 99 | 1 | 99 | 99 | 33 | 99 | 49 | 0 | 47 | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 1 | 17 | 0 | 0 | 8 | 99 | 10 | 97 | 99 | 99 | 0 | 1 | 54 | 99 | 1 | 0 | 99 |
| A4 | 0 | 0 | 99 | 0 | 0 | 99 | 0/5 | 64 | 0 | 0 | 99 | 99 | 41 | 99 | 0 | 0 | 99 | 41 | 99 | 0 | 0 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 1 | 0 | 99 | 0 | 4 | 99 | 0 | 1 | 0 | 0 | 97 | 1 | 54 | 99 | 99 | 0 | 99 |
| A5 | 4 | 0 | 21 | 24 | 0 | 99 | 2/0 | 59 | 0 | 0 | 99 | 2 | 99 | 97 | 0 | 99 | 31 | 14 | 23 | 0 | 51 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 1 | 0 | 99 | 99 | 97 | 0 | 0 | 99 | 0 | 14 | 0 | 1 | 51 | 99 | 99 | 99 | 99 |
| A6 | 0 | 2 | 47 | 0 | 0 | 99 | 0/7 | 57 | 0 | 0 | 99 | 3 | 51 | 99 | 0 | 99 | 0 | 99 | 23 | 1 | 53 | 0 | 0 | 0 | 90 | 0 | 0 | 0 | 1 | 0 | 99 | 0 | 19 | 19 | 0 | 14 | 0 | 0 | 1 | 99 | 78 | 99 | 99 | 14 | 79 |
| A7 | 0 | 1 | 0 | 99 | 0 | 99 | 0/0 | 99 | 1 | 0 | 99 | 2 | 99 | 99 | 13 | 77 | 19 | 99 | 11 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 97 | 99 | 13 | 13 | 99 | 0 | 97 | 99 | 0 | 1 | 73 | 99 | 99 | 14 | 99 | 99 |
| A8 | 13 | 0 | 0 | 0 | 0 | 99 | 0/0 | 99 | 1 | 0 | 99 | 1 | 99 | 99 | 33 | 99 | 99 | 19 | 13 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 97 | 1 | 99 | 0 | 97 | 1 | 0 | 1 | 0 | 97 | 1 | 97 | 0 | 97 |
| A9 | 0 | 2 | 13 | 13 | 0 | 99 | 4/7 | 99 | 1 | 1 | 99 | 1 | 99 | 99 | 14 | 99 | 99 | 23 | 99 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 97 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A10 | 14 | 1 | 99 | 0 | 0 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 97 | 75 | 99 | 99 | 0 | 99 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 0 | 99 | 17 | 99 | 0 | 97 | 1 | 99 | 14 | 99 | 0 | 99 | 0 | 79 |
| A11 | 0 | 1 | 0 | 0 | 0 | 99 | 0/0 | 99 | 1 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 19 | 0 | 0 | 0 | 99 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 97 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A12 | 0 | 1 | 0 | 0 | 0 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A13 | 0 | 2 | 42 | 0 | 0 | 99 | 3/0 | 99 | 0 | 1 | 97 | 1 | 99 | 99 | 49 | 99 | 61 | 14 | 25 | 0 | 0 | 49 | 0 | 0 | 0 | 97 | 0 | 0 | 1 | 0 | 99 | 97 | 1 | 99 | 1 | 99 | 97 | 13 | 97 | 1 | 0 | 99 | 92 | 1 | 19 |
| A14 | 0 | 1 | 19 | 97 | 0 | 99 | 0/0 | 99 | 1 | 0 | 99 | 1 | 97 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 97 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 99 | 99 | 99 |
| A15 | 13 | 2 | 19 | 0 | 0 | 99 | 3/0 | 99 | 1 | 0 | 99 | 1 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 97 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A16 | 0 | 2 | 60 | 0 | 0 | 99 | 0/0 | 99 | 1 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A17 | 13 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 1 | 1 | 99 | 1 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A18 | 13 | 2 | 0 | 0 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 97 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A19 | 0 | 2 | 47 | 0 | 0 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A20 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A21 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A22 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A23 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A24 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A25 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A26 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A27 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |
| A28 | 0 | 2 | 0 | 99 | 1 | 99 | 7/0 | 99 | 0 | 0 | 99 | 0 | 99 | 99 | 0 | 99 | 0 | 99 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 99 | 99 | 99 | 0 | 0 | 99 | 99 | 99 | 0 | 1 | 0 | 99 | 99 | 0 | 99 | 99 |

* VOICE ELEMENT1 HAS TWO TYPES AS B-TYPE AND C-TYPE.
DATA NO. 25, 26 AND 32 ARE DIFFERENT FROM C-TYPE IC.

## B BANK SOUND DATA

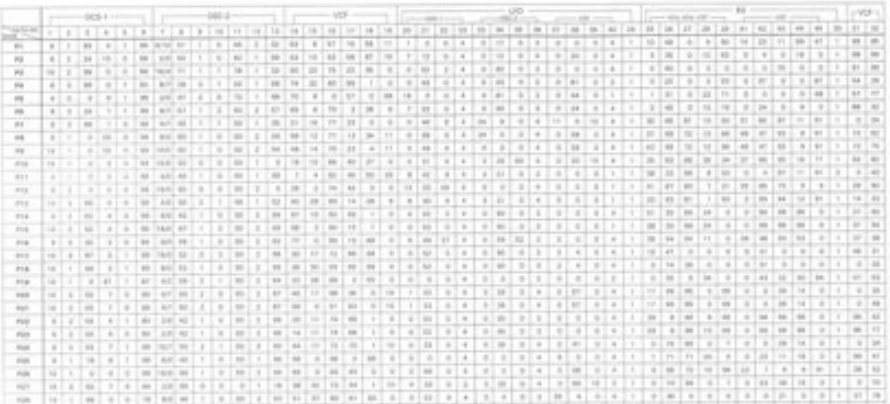
for C-Type IC

| ADDRESS | OSC1 | | | | | | OSC2 | | | | | | VCF | | | | | | LFO | | | | | | VCA | | | | | | EG | | | | | | VCF | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 |
| 80 | 6 | 3 | 12 | 4 | 0 | 85 | 19.45 | 75 | 3 | 1 | 64 | 1 | 19 | 19 | 48 | 10 | 23 | 10 | 0 | 0 | 0 | 4 | 0 | 0 | 4 | 1 | 22 | 41 | 4 | 1 | 5 | 47 | 0 | 12 | 50 | 14 | 12 | 11 | 0 | 87 | 1 | 60 | 48 | 67 | 8 | 48 |
| 81 | 15 | 1 | 0 | 0 | 0 | 0 | 4.01 | 47 | 3 | 0 | 56 | 1 | 99 | 61 | 0 | 50 | 67 | 40 | 99 | 15 | 0 | 0 | 4 | 0 | 44 | 0 | 0 | 0 | 20 | 0 | 4 | 1 | 0 | 31 | 0 | 21 | 11 | 0 | 0 | 0 | 99 | 48 | 1 | 67 | 56 | 59 | 34 | 95 |
| 82 | 6 | 3 | 0 | 0 | 0 | 20 | 4.0 | 48 | 0 | 0 | 49 | 0 | 99 | 67 | 0 | 70 | 19 | 1 | 23 | 7 | 99 | 0 | 0 | 0 | 40 | 0 | 0 | 0 | 20 | 0 | 4 | 1 | 0 | 40 | 60 | 40 | 0 | 0 | 0 | 0 | 99 | 48 | 1 | 67 | 56 | 49 | 99 | 99 |
| 84 | 15 | 1 | 0 | 0 | 0 | 99 | 4.01 | 47 | 3 | 0 | 70 | 1 | 99 | 99 | 80 | 70 | 67 | 99 | 0 | 15 | 0 | 0 | 4 | 0 | 44 | 0 | 0 | 0 | 20 | 0 | 4 | 1 | 0 | 33 | 0 | 28 | 11 | 0 | 0 | 0 | 99 | 48 | 1 | 67 | 56 | 59 | 34 | 95 |
| 85 | 6 | 3 | 99 | 0 | 0 | 99 | 2.01 | 50 | 1 | 1 | 99 | 1 | 71 | 53 | 61 | 99 | 50 | 0 | 0 | 40 | 0 | 4 | 0 | 40 | 0 | 0 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 99 | 0 | 99 | 0 | 0 | 0 | 0 | 99 | 0 | 1 | 70 | 67 | 99 | 61 | 67 |
| 86 | 15 | 1 | 67 | 0 | 0 | 0 | 4.01 | 51 | 3 | 0 | 70 | 1 | 67 | 61 | 0 | 70 | 1 | 0 | 99 | 7 | 99 | 0 | 4 | 0 | 99 | 0 | 0 | 0 | 67 | 0 | 4 | 1 | 0 | 40 | 0 | 99 | 0 | 0 | 0 | 0 | 99 | 48 | 1 | 67 | 56 | 99 | 99 | 99 |
| 87 | 6 | 3 | 99 | 0 | 0 | 70 | 4.01 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 99 | 71 | 99 | 19 | 0 | 0 | 99 | 0 | 4 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 99 | 0 | 99 | 99 | 99 | 0 | 0 | 99 | 0 | 1 | 99 | 99 | 99 | 99 | 99 |
| 88 | 0 | 3 | 99 | 0 | 0 | 0 | 0.7 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 99 | 99 | 99 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 99 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 89 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 8A | 0 | 3 | 99 | 0 | 0 | 0 | 0.7 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 99 | 99 | 99 | 99 | 0 | 0 | 0 | 0 | 4 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 99 | 0 | 99 | 99 | 99 | 0 | 0 | 99 | 0 | 1 | 99 | 99 | 99 | 99 | 99 |
| 8B | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 8C | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 8D | 0 | 3 | 99 | 0 | 0 | 0 | 0.7 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 99 | 99 | 99 | 99 | 0 | 0 | 0 | 0 | 4 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 99 | 0 | 99 | 99 | 99 | 0 | 0 | 99 | 0 | 1 | 99 | 99 | 99 | 99 | 99 |
| 8E | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 8F | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 90 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 91 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 92 | 0 | 3 | 99 | 0 | 0 | 0 | 0.7 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 99 | 99 | 99 | 99 | 0 | 0 | 0 | 0 | 4 | 0 | 99 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 99 | 0 | 99 | 99 | 99 | 0 | 0 | 99 | 0 | 1 | 99 | 99 | 99 | 99 | 99 |
| 93 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 94 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 95 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 96 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 97 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 98 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 99 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 9A | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 9B | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 9C | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 9D | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 9E | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| 9F | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A0 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A1 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A2 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A3 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A4 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A5 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A6 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |
| A7 | 1 | 3 | 99 | 99 | 0 | 1 | 1.0 | 99 | 3 | 0 | 99 | 1 | 99 | 99 | 7 | 74 | 99 | 99 | 91 | 11 | 91 | 0 | 4 | 1 | 0 | 99 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 99 | 44 | 99 | 99 | 0 | 99 | 0 | 99 | 99 | 1 | 67 | 99 | 99 | 99 | 99 |

* Not B-Type IC

* VOICE 0 (CASSETTE) HAS TWO TYPES AS B TYPE AND C TYPE
DATA NO. 34, 35 AND 53 ARE DIFFERENT FROM C TYPE IC

## I-ROM SOUND DATA



## K-ROM SOUND DATA

# SECTION 2

# PARTS LIST

TABLE OF CONTENTS


RECOMMENDED SPARE PARTS ..... 21
1. PC BOARD BLOCK ..... 22
2. VOICE PC BOARD ..... 22
3. CPU PC BOARD ..... 23
4. FLD (2) PC BOARD ..... 23
5. FLD (1) PC BOARD ..... 23
6. OPERATION (1) PC BOARD ..... 23
7. OPERATION (2) PC BOARD ..... 23
8. OPERATION (3) PC BOARD ..... 23
9. JACK PC BOARD ..... 23
10. POWER SUPPLY PC BOARD ..... 24
11. FILTER PC BOARD ..... 24
12. MUTING PC BOARD ..... 24
13. PANEL BEND BLOCK ..... 25
14. ASSEMBLY BLOCK ..... 27
15. FINAL ASSEMBLY BLOCK ..... 27
INDEX ..... 28



This Manual is FOR INTERNAL USE ONLY and must not be made available to unauthorized personal. No part of this material may be reproduced in any form without permission from AKAI ELECTRIC CO., LTD., Tokyo, Japan.

## ATTENTION

1. When placing an order for parts, be sure to list the parts no. model no., and description of each part. If any of this information is omitted, there are instances in which parts cannot be shipped or the wrong parts will be delivered.
2. Please be careful not to make a mistake in the parts no. If the parts no. is in error, a part different from the one ordered may be delivered.
3. Because part numbers and part definitions and supply in the Preliminary Parts List may have been the subject of changes, please use this parts list for all future reference.

## HOW TO USE THIS PARTS LIST

1. This Parts List shows those parts which are considered necessary for repairs. Other parts, such as resistors and capacitors, are shown in the "Common List for Service Parts" from which these parts should be selected and parts.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the parts list
   a) Mechanism Block

### 2. HEAD BASE BLOCK

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 2-1 | HP-0121045A01A | HEAD S/P PH445U C |
| 2-3 | ZS-4375874 | FAN(16.5)STL CMT |
| 2-4 | ZS-436488 | RD2010STL CMT |
| 2-5 | ZS-460895 | CS ANGLE ADJUST SPRING |

SP (Service Parts) Classification

A small "x" indicates the inability to show that particular part in the Photo or Illustration.

This number corresponds with the individual parts index number in that figure

This number corresponds with the Figure Number

   b) P.C Board Block

### 6. SYS. CON. P C BOARD BLOCK

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 6-1 | ZS-32034A07SA | PC SYS CON BLK GX-E448 |
| 6-IC1 | EI-324136 | IC HD14040BP |
| 6-IC2 | EI-324001 | IC MB8841-644M |
| 6-IC3 | EI-321661 | IC SN74HC |
| 6-IC4 | EI-336725 | IC M34127P |
| 6-TR1 | ET-200984 | TR 2SC1623 F,G |
| 6-TR2 | ET-324627 | TR 2SA733A P,Q |
| 6-D1 | ED-318242 | D SILICON H 1S2473T-77 T26 |
| 6-D2 | ED-308912 | D GERMA V 1K34A LR F87 |
| 6-D3 | ED-318242 | D SILICON H 1S2473T-77 T26 |
| 6-XL | ZS-318364 | OSC X'TAL 8C-18C |

3.579545MHZ

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

5. The kind of part and its installation position can both be determined by the Part Number. To determine where a part number is listed, utilize the Parts Index at the end of the Parts List. It is necessary first of all to find the Part Number. This can be accomplished by using the Reference Number listed at the right of the part number in the Parts Index.

## WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

## AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SECURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

## RECOMMENDED SPARE PARTS LIST

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts items.

| REF. NO. | | PART NO. | DESCRIPTION |
|---|---|---|---|
| 1 | N | RT-334247 | ⚠TRANS POWER AX-80 T-101[J] |
| 2 | N | RT-334246 | ⚠TRANS POWER AX-80 T-301[C, A] |
| 3 | N | RT-334243 | ⚠TRANS POWER AX-80 T-701[U, E, B, S] |
| 4 | N | ED-337036 | ⚠D SILICON DBA208 100/2.0A |
| 5 | N | ED-337038 | ⚠D SILICON D0BI10B 130/1.0A |
| 6 | | ED-337263 | ⚠D ZENER W HZ6-C2 |
| 7 | N | ED-334114 | D LED SR 5307S RED |
| 8 | N | ED-337037 | D SILICON D0BA30B 100/3.0A |
| 9 | | ED-301911 | D SILICON 10 DB448 |
| 10 | | ED-344280 | D SILICON 10 GMA-01-FV2 305 |
| 11 | | ED-337614 | D SILICON 10D1FA-1 E15 120/1.0A |
| 12 | | ED-330187 | D ZENER W HZ12 BC |
| 13 | | ED-329038 | D ZENER W HZ3-C3 |
| 14 | | ED-306010 | D ZENER W HZ6-A2 |
| 15 | | EF-602530 | ⚠FUSE SEMKO T 1.25A 250V [U, E, B, S] |
| 16 | | EF-601087 | ⚠FUSE SEMKO T 1.15A 250V [U, E, B, S] |
| 17 | | EF-258344 | ⚠FUSE SEMKO T 800MA 250V [U, E, B, S] |
| 18 | | EF-306849 | ⚠FUSE TSC A 250V 1.25A [J] |
| 19 | | EF-311839 | ⚠FUSE TSC A 250V 1.60A [J] |
| 20 | | EF-326839 | ⚠FUSE TSC A 250V 3.15A [J] |
| 21 | | EF-309392 | ⚠FUSE TSC 125V 1.25A [C, A] |
| 22 | | EF-308847 | ⚠FUSE TSC 125V 1.60A [C, A] |
| 23 | | EF-306856 | ⚠FUSE TSC 125V 2.50A [C, A] |
| 24 | | EF-323080 | ⚠FUSE TSC 125V 3.15A [C, A] |
| 25 | N | EI-334283 | ICBA6110 |
| 26 | N | EI-334184 | IC CEM3372 1160B (B TYPE) |
| 27 | N | EI-339630 | IC CEM3372 1160C (C TYPE) |
| 28 | N | EI-334098 | IC HD74LS136P |
| 29 | N | EI-333578 | IC M6C7448C1305 |
| 30 | N | EI-334162 | IC M6C7485C32N |
| 31 | | EI-307644 | IC NJM4558D |
| 32 | | EI-2113980 | IC NJM4558D |
| 33 | | EI-336095 | IC NJM78L05A |
| 34 | N | EI-334175 | IC NJM78M05 |
| 35 | N | EI-339663 | IC NJM78/15A |
| 36 | N | EI-336299 | IC NJM79M05A |
| 37 | N | EI-333666 | IC NJM7915A |
| 38 | N | EI-334158 | IC SN74LS00N |
| 39 | | EI-310043 | IC SN74LS03N |
| 40 | N | EI-334132 | IC SN74LS138N |
| 41 | N | EI-334159 | IC SN74LS14N |
| 42 | N | EI-333560 | IC SN74LS27N |
| 43 | N | EI-333575 | IC SN74LS293N |
| 44 | N | EI-334133 | IC SN74LS373N |
| 45 | N | EI-335771 | IC SN74LS38N |
| 46 | N | EI-333315 | IC SN74LS42N |
| 47 | | EI-304657 | IC TC4013BP |
| 48 | | EI-306727 | IC TC4013BP/MC14013B |
| 49 | | EI-330581 | IC TC4030BP |
| 50 | | EI-302253 | IC TC4052BP |
| 51 | | EI-324233 | IC TL082CP |
| 52 | N | EI-334099 | IC μPA80C |
| 53 | N | EI-334197 | IC μPC311C |

| REF. NO. | | PART NO. | DESCRIPTION |
|---|---|---|---|
| 54 | N | EI-334145 | IC μPD2764D-1 (J TYPE) |
| 55 | N | EI-339631 | IC μPD2764 K (K TYPE) |
| 56 | N | EI-334147 | IC μPD446C-1 |
| 57 | N | EI-337060 | IC μPD7810G-144 |
| 58 | N | EI-334146 | IC μPD8255C-2 |
| 59 | N | EI-334149 | IC μPD8255AC-2 |
| 60 | N | EI-334232 | IC μPD8279C-2 |
| 61 | N | EI-334125 | OSC CE CSA/20MT 12.000000MHz |
| 62 | N | EI-334168 | OSC X'TAL HC-18/6.5344800MHz |
| 63 | N | EI-334235 | DIN J TCS0815-0101 5P |
| 64 | N | EI-337159 | PHONE J 2P 9D_8D20-110 W/50UT 6.3 |
| 65 | N | EI-335031 | PHONE J 5P 8L_8D20-010 |
| 66 | N | EM-334897 | IND PL 8G-2632E CHARACTER |
| 67 | N | EM-334113 | IND LE TLR121 |
| 68 | N | EM-334112 | IND LE TLR351 |
| 69 | N | EO-334204 | COIL LF PLA3021A |
| 70 | | EQ-348929 | REALAY SIG-G1A-232P 2TR 12V |
| 71 | | ER-122328 | ⚠R FUSE ERD2FC 1/4W 220Ω |
| 72 | N | ES-335373 | ⚠SW SEESAW SDGAB1607A T = 8.1 [C, A] |
| 73 | N | ES-334236 | ⚠SW SEESAW SDGBA1155A [J, U, E, B, S] |
| 74 | | ES-349070 | ⚠SW SELECTOR YKS11-0002-02-4 [U, E, B, S] |
| 75 | N | ES-335365 | SW SLIDE SSBB02681A 2-02-02N |
| 76 | N | ES-334113 | SW TACT SKSICAC0216 |
| 77 | | ET-345058 | ⚠TR 2SB1079EP E, F |
| 78 | N | ET-334167 | PHOTO SENSOR PC900 |
| 79 | N | ET-337083 | PHOTO SENSOR TLP131BL |
| 80 | | ET-491491 | TR FET 2SK30A GR |
| 81 | | ET-322778 | TR 2SA608K-NP E, F, G |
| 82 | | ET-308141 | TR 2SC2401-G |
| 83 | | ET-400413 | TR 2SC1636NP-E |
| 84 | | EV-307693 | R S-PDL H 8BK1/4 3P 0.02W 10k |
| 85 | | EV-336778 | R S-PDL H 8BK1/4 3P 0.02W 47 |
| 86 | N | EV-334255 | VR ROTARY 16L10KOV B103 |
| 87 | N | EV-334254 | VR ROTARY 16L10KOW 103 CUS-TOM-2 |
| 88 | N | EV-336063 | VR ROTARY 16L10KON B103 L = 20 |
| 89 | N | EV-334253 | VR ROTARY 16P20=1T A503 |
| 90 | N | EV-336256 | VR ROTARY 24L10=1G B013 |
| 91 | N | EZ-334109 | BATTERY LITHIUM 3V CR2430 T |

"NOTE" N: New Part.

SYMBOL FOR DESTINATION

[A] : AAL (U.S.A)
[B] : UK (England)
[C] : CSA(Canada)
[E] : CEE (Europe)
[J] : JPN (Japan)
[S] : SAA (Australia)
[U] : U/T (Universal Area)

## 1. PC BOARD BLOCK

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 1-1 | BA-L1003A6040A | PC VOICE BLK AX80 |
| 1-2 | BA-L1003A6050A | PC CPU BLK AX80[E,U] |
| 1-3A | BA-L1003A1320A | PC PANEL (J) BLK AX80[E, U, F, B, S] |
| 1-3B | BA-L1003A1208B | PC PANEL (1) BLK AX80[C, A] |
| 1-4 | BA-L1003A1350A | PC PANEL (2) BLK AX80 |
| 1-5A | BA-L1003A6050A | PC POWER BLK AX80[E] |
| 1-5B | BA-L1003A6050B | PC POWER BLK AX80[CA] |
| 1-5C | BA-L1003A6050C | PC POWER BLK AX80[U, E, B, S] |
| 1-6A | BA-L3001A6050A | PC FILTER BLK AX80[E] |
| 1-6B | BA-L3001A6050B | PC FILTER BLK AX80[U, E, B, S] |
| 1-6C | BA-L3001A6050C | PC FILTER BLK AX80[C, A] |
| 1-7 | BA-L1003A1140A | PC MUTING BLK AX80 |

NOTES:

(1) PC PANEL (1) BLK consists of following PC BOARDS.
- FLD (1) PC BOARD
- OPERATION (2) PC BOARD
- JACK PC BOARD

(2) PC PANEL (2) BLK consists of following PC BOARDS.
- FLD (2) PC BOARD
- OPERATION (1) PC BOARD
- OPERATION (3) PC BOARD

## 2. VOICE PC BOARD

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 2-IC1 | ES-354152 | IC SN74LS138N |
| 2-IC2 to A | ES-302253 | IC TC8051BP |
| 2-IC7 | ES-213390 | IC NJM4558D |
| 2-IC8 to 27 | ES-324259 | IC TL082CP |
| 2-IC28 | ES-354283 | IC BA6110 |
| 2-IC101, 102 | ES-213390 | IC NJM4558D |
| 2-IC103, 104 | ES-304637 | IC TC40110P |
| 2-IC105 | ES-306723 | IC TC 40138P/MC14013B |
| 2-IC106A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC106B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-IC107, 201, 202 | ES-213390 | IC NJM4558D |
| 2-IC206A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC206B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-IC301, 302 | ES-213390 | IC NJM4558D |
| 2-IC303, 304 | ES-304637 | IC TC40110P |
| 2-IC305 | ES-306727 | IC TC40138P/MC14013B |
| 2-IC306A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC306B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-IC307, 401, 402 | ES-213390 | IC NJM4558D |
| 2-IC406A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC406B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-IC501, 502 | ES-213390 | IC NJM4558D |
| 2-IC503, 504 | ES-304637 | IC TC40110P |
| 2-IC505 | ES-306727 | IC TC40138P/MC14013B |
| 2-IC506A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC506B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-IC507, 601, 602 | ES-213390 | IC NJM4558D |
| 2-IC606A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC606B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-IC701, 702 | ES-213390 | IC NJM4558D |
| 2-IC703, 704 | ES-304637 | IC TC40110P |
| 2-IC705 | ES-306727 | IC TC40138P/MC14013B |
| 2-IC706A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC706B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-IC707, 801, 802 | ES-213390 | IC NJM4558D |
| 2-IC806A | ES-354184 | IC CEM3372 3160B-(B TYPE) |
| 2-IC806B | ES-359630 | IC CEM3372 3160C-(C TYPE) |
| 2-TR1, 101, 102 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR103, 104 | ET-491051 | TR FET 2SK30A GR |

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 2-TR201, 202 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR203 | ET-491051 | TR FET 2SK30A GR |
| 2-TR204 | ET-491051 | TR FET 2SK30A GR |
| 2-TR301, 302 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR303, 304 | ET-491051 | TR FET 2SK30A GR |
| 2-TR401, 402 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR403, 404 | ET-491051 | TR FET 2SK30A GR |
| 2-TR501, 502 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR503, 504 | ET-491051 | TR FET 2SK30A GR |
| 2-TR601, 602 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR603, 604 | ET-491051 | TR FET 2SK30A GR |
| 2-TR701, 702 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR703, 704 | ET-491051 | TR FET 2SK30A GR |
| 2-TR801, 802 | ET-322770 | TR 2SA608K-NP E, F, G |
| 2-TR803, 804 | ET-491051 | TR FET 2SK30A GR |
| 2-D1 | ED-329008 | D ZENER H HZ3 C1 |
| 2-D2, 101 to 107 | ED-301911 | D SILICON H DS448 |
| 2-D108, 109 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-D201 to 207 | ED-301911 | D SILICON H DS448 |
| 2-D208, 209 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-D301 to 307 | ED-301911 | D SILICON H DS448 |
| 2-D308, 309 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-D401 to 407 | ED-301911 | D SILICON H DS448 |
| 2-D408, 409 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-D501 to 507 | ED-301911 | D SILICON H DS448 |
| 2-D508, 509 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-D601 to 607 | ED-301911 | D SILICON H DS448 |
| 2-D608, 609 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-D701 to 707 | ED-301911 | D SILICON H DS448 |
| 2-D708, 709 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-D801 to 807 | ED-301911 | D SILICON H DS448 |
| 2-D808, 809 | ED-344280 | D SILICON H GMA-01-F'G2 F05 |
| 2-VR1 | EV-326170 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR101 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR102 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR201 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR202 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR301 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR302 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR401 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR402 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR501 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR502 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR601 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR603 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR701 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR702 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-VR801 | EV-307693 | R S-FIX H 10B651A 3P 0.05W 104 |
| 2-VR802 | EV-326770 | R S-FIX H 10B651A 3P 0.05W 473 |
| 2-FB1 | ER-320528 | ⚠ R FUSE 1R0J0PC 1/4W |
| | | 22BOG |
| 2-R100 | ER-357358 | R MF H F05 1/4W 6202F |
| 2-R127 | ER-353582 | R MF H F05 1/4W 3001F |
| 2-R128 | ER-353864 | R MF H F05 1/4W 1502F |
| 2-R141 | ER-347989 | R MF H F05 1/4W 1001F |
| 2-R206 | ER-357358 | R MF H F05 1/4W 6202F |
| 2-R227 | ER-353582 | R MF H F05 1/4W 3001F |
| 2-R228 | ER-353864 | R MF H F05 1/4W 1502F |
| 2-R241 | ER-347989 | R MF H F05 1/4W 1001F |
| 2-R306 | ER-357358 | R MF H F05 1/4W 6202F |
| 2-R327 | ER-353582 | R MF H F05 1/4W 3001F |
| 2-R328 | ER-353864 | R MF H F05 1/4W 1502F |
| 2-R341 | ER-347989 | R MF H F05 1/4W 1001F |
| 2-R406 | ER-357358 | R MF H F05 1/4W 6202F |
| 2-R427 | ER-353582 | R MF H F05 1/4W 3001F |
| 2-R428 | ER-353864 | R MF H F05 1/4W 1502F |
| 2-R441 | ER-347989 | R MF H F05 1/4W 1001F |
| 2-R506 | ER-357358 | R MF H F05 1/4W 6202F |
| 2-R527 | ER-353582 | R MF H F05 1/4W 3001F |
| 2-R528 | ER-353864 | R MF H F05 1/4W 1502F |
| 2-R541 | ER-347989 | R MF H F05 1/4W 1001F |
| 2-R606 | ER-357358 | R MF H F05 1/4W 6202F |
| 2-R627 | ER-353582 | R MF H F05 1/4W 3001F |
| 2-R628 | ER-353864 | R MF H F05 1/4W 1502F |
| 2-R641 | ER-347989 | R MF H F05 1/4W 1001F |

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 2-R706 | EB-357338 | R MF R 005 1 6W 6202F |
| 2-R727 | EB-355582 | R MF R 005 1 6W 3001F |
| 2-R728 | EB-355064 | R MF R 005 1 6W 1502F |
| 2-R741 | EB-343989 | R MF R 005 1 6W 1001F |
| 2-R806 | EB-357338 | R MF R 005 1 6W 6202F |
| 2-R827 | EB-355582 | R MF R 005 1 6W 3001F |
| 2-R828 | EB-355064 | R MF R 005 1 6W 1502F |
| 2-R841 | EB-343989 | R MF R 005 1 6W 1001F |
| 2-C100 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C122 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-C205 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C222 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-C305 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C322 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-C405 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C422 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-C505 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C522 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-C605 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C622 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-C705 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C722 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-C805 | EC-357035 | C PP V CQM-92PP 1001G 100DC |
| 2-C822 | EC-328563 | C EC V 005 SRA 2R2M 50.0DC |
| 2-S1 to 4 | EJ-338467 | SOCKET IC S-D070 |

## 3. CPU PC BOARD

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| | **CPU PC BOARD** | |
| 3-IC1, 2 | EJ-357060 | IC µPD78113G-144 |
| 3-IC3 | EJ-354135 | IC SN74LS273N |
| 3-IC5, 8 | EJ-354147 | IC µPD440C-3 |
| 3-IC7 | EJ-355378 | IC MM74HC139N |
| 3-IC8 | EJ-354152 | IC SN74LS138N |
| 3-IC9, 10 | EJ-354149 | IC µPD8253AC-2 |
| 3-IC11 | EJ-354252 | IC µPD8279C-2 |
| 3-IC12 | EJ-354153 | IC SN74LS273N |
| 3-IC13 to 15 | EJ-338391 | IC TC4016BP |
| 3-IC16 | EJ-355575 | IC SN74LS293N |
| 3-IC17 | EJ-354158 | IC SN74LS00N |
| 3-IC18, 19 | EJ-318063 | IC SN74LS63N |
| 3-IC20 to 25 | EJ-354146 | IC UPD8253C-2 |
| 3-IC26 | EJ-354162 | IC MM74HC32N |
| 3-IC27 | EJ-354157 | IC µPC311C |
| 3-IC29 | EJ-354158 | IC SN74LS00N |
| 3-IC30 | EJ-355360 | IC SN74LS27N |
| 3-IC31 | EJ-354159 | IC SN74LS14N |
| 3-IC32 | EJ-318065 | IC SN74LS08N |
| 3-TR1 | ET-403613 | TR 2SC536NP H |
| 3-D4 to 8 | ED-301911 | D SILICON 10 DS440 |
| 3-PS1 | ET-354167 | PHOTO SENSOR PC900 |
| 3-PS2 | ET-355581 | PHOTO SENSOR TLP531BL |
| 3-X1 | EJ-354123 | OSC CE CSA/GSMT 12.000000 MHz |
| 3-X2 | EJ-354168 | OSC X'TAL SC-16 6.334000 MHz |
| 3-IB1, 2 | EH-355361 | COMP R EXB-R04 103K |
| 3-IB3 to 6 | EH-355380 | COMP R EXB-C44 203J |
| 3-IB7, 8 | EH-355379 | COMP R EXB-Q08 103J |
| 3-R25 | EB-355564 | R OMF H SL5 FS 1W 911J |
| 3-BT1 | EZ-354149 | BATTERY LITHIUM 3V CR2430-T |
| 3-1 | EJ-349202 | SOCKET IC 640267-3 P 28P |
| | **ASSEMBLY BLOCK** | |
| 3-IC4A | EJ-354145 | IC UPD2764D-1 (I TYPE) |
| 3-IC4B | EJ-359621 | IC UPD2764 K (K TYPE) |

## 4. FLD(2) PC BOARD

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 4-IC1 | EJ-334098 | IC HD74LS154P |
| 4-IC2, 3 | EJ-334099 | IC µPA80C |
| 4-D1 | ED-300010 | D ZENER H 02X A2 |
| 4-DN1, 2 | EM-354097 | IND FL BG-2032K CHARACTER |

## 5. FLD(1) PC BOARD

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 5-IC1 | EJ-334098 | IC HD74LS154P |
| 5-IC2 to 6 | EJ-334099 | IC µPA80C |
| 5-DN1 to 3 | EM-354097 | IND FL BG-2032K CHARACTER |

## 6. OPERATION(1) PC BOARD

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 6-IC1 | EJ-355015 | IC SN76LS42N |
| 6-IC2, 3 | EJ-355771 | IC SN76LS38N |
| 6-TR1 to 7 | ET-322778 | TR 2SA608K-NP E, F, G |
| 6-D1 | EM-354112 | IND LE TL R333 CHARACTER |
| 6-D2, 3 | EM-354113 | IND LE TL R325 |
| 6-D4 to 14 | ED-334114 | D LED BR-350TS RED |
| 6-SW1 to 14 | EJ-354115 | SW TACT SK06CAC021A |

## 7. OPERATION(2) PC BOARD

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 7-SW1 to 10 | EJ-354115 | SW TACT SK06CAC021A |

## 8. OPERATION(3) PC BOARD

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 8-SW1 to 13 | EJ-354115 | SW TACT SK06CAC021A |

## 9. JACK PC BOARD

| REF NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 9-IC1 | EJ-307646 | IC NJM4556D |
| 9-L1,2 | ED-338637 | COIL FIX 1 LAL04SK 2R2K |
| 9-R7,8 | EB-300835 | R CB II 0.5 FS RDS 1/2W 101J |
| 9-J1 | EJ-357159 | PHONE J 2P HL00520-11E W/NUT 6.3 |
| 9-J2 | EJ-353051 | PHONE J 3P HL00520-01E |
| 9-J3 to 6 | EJ-357159 | PHONE J 2P HL00520-11E W/NUT 6.3 |

## 10. POWER SUPPLY PC BOARD

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 10-IC1 | ID-353665 | IC NJM7815A |
| 10-IC2 | ID-350995 | Ic NJM78L05A |
| 10-IC3 | ID-353666 | IC NJM7915A |
| 10-IC4 | ID-356299 | IC NJM79M05A |
| 10-IC5 | ID-354175 | IC NJM78M05 |
| 10-TR1 | ET-347004 | ⚠ TR 2SB647/B/F/E, F |
| 10-D1 | ED-357030 | ⚠ D-SILICON DBA20B 100/2.0A |
| 10-D2 | ED-357037 | ⚠ D-SILICON DBA30B 100/3.0A |
| 10-D3 | ED-357625 | ⚠ D-ZENER H HZS-C2 |
| 10-D4 | ED-361911 | D SILICON H DB4B |
| 10-D5 | ED-350014 | D SILICON 10D1FA // F15 100/1.0A |
| 10-D6 | ED-357038 | ⚠ D-SILICON DB810B 100/1.0A |
| 10-R1 | ⚠ 258800 | ⚠ R FUSE ERD2FC 0.1 1/4W 2200G |
| 10-R3 | ER-302241 | R CR1/2 5.0 FS 0206 1/4W 4R7J |
| 10-C4, 11 | EC-329847 | C EC V CU/T 50V 1020M 11.5DC |
| 10-C10 | EC-347047 | C EC V S10 K/M 6.3/2M 16DC |
| 10-1 | GZ-200473 | SILICON RUBBER SHEET TC-30 |
| 10-2 | ZW-653234 | INSULATOR W 6.8HER |
| | | (BU3019N) |

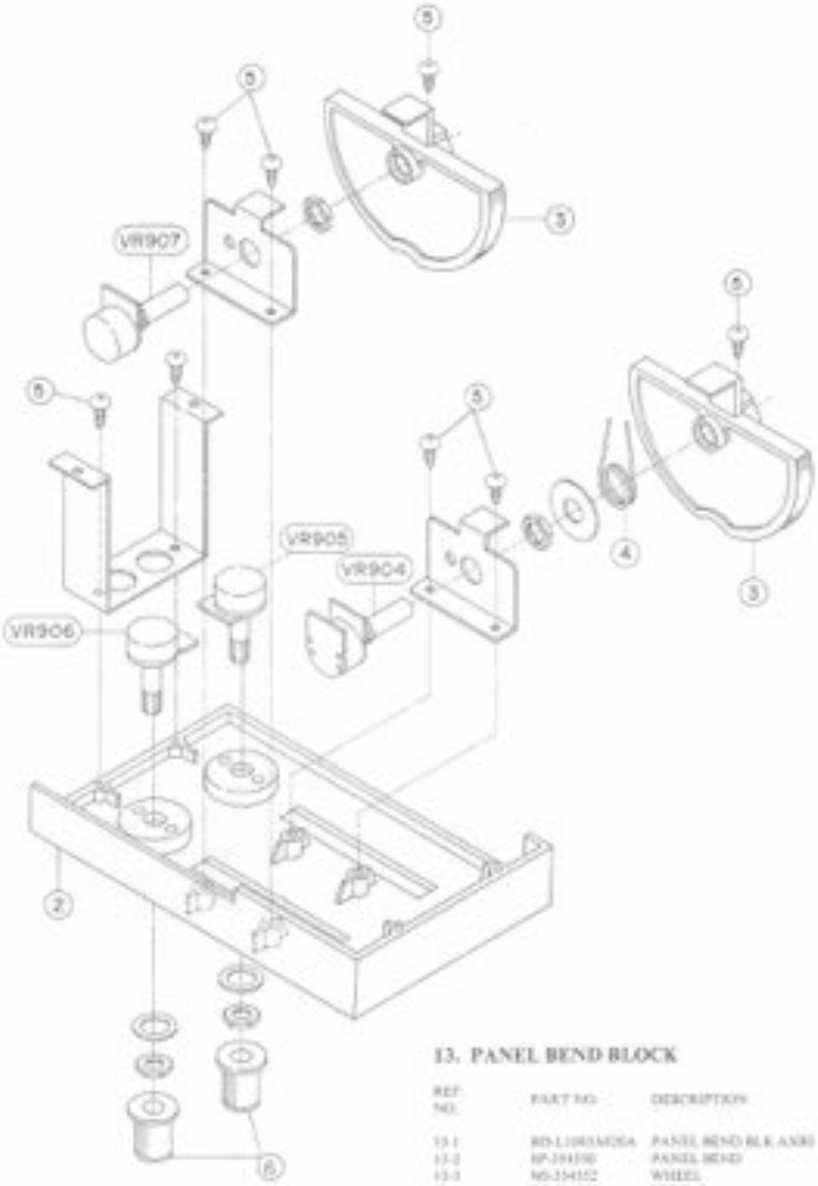
## 11. FILTER PC BOARD

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 11-FL1 | ID-354224 | COIL LF PLA1051A |
| 11-C1 | EC-330411 | ⚠ C CE V FZ 103P 400AC |

## 12. MUTING PC BOARD

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 12-TR1 | ET-348141 | TR 2SC2603 G |
| 12-D1, 2 | ED-361911 | D SILICON H DB4B |
| 12-D3 | ED-330387 | D-ZENER H HZ12 B2 |
| 12-L1 | BQ-348029 | RELAY RG G5A-232P 2TR 12V |

PANEL BEND BLOCK

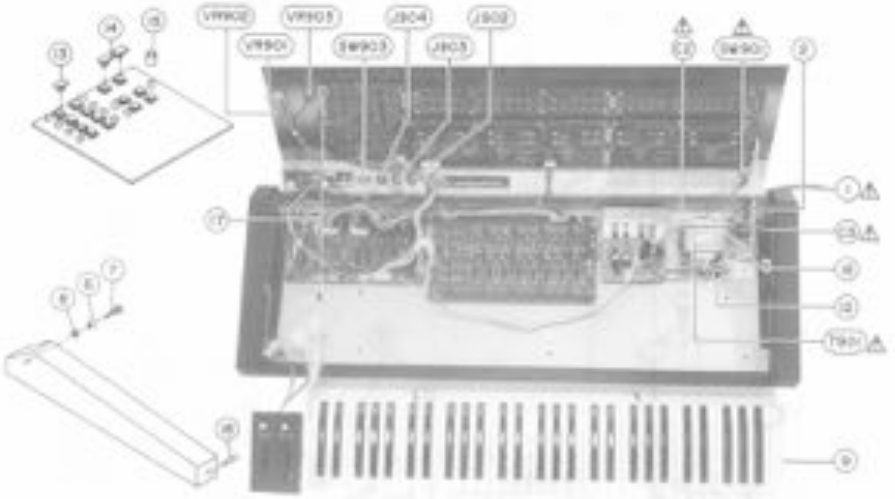


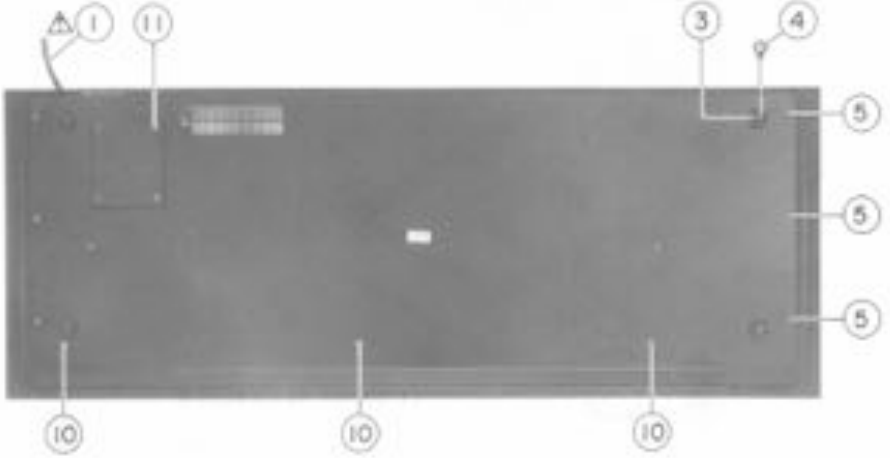

## 13. PANEL BEND BLOCK

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 13-1 | BD-L1083A026A | PANEL BEND BLK AX80 |
| 13-2 | BP-184350 | PANEL BEND |
| 13-3 | WI-154352 | WHEEL |
| 13-4 | ZD-336103 | IP BEND |
| 13-5 | ZS-116904 | PT BR30×08STL CMT |
| 13-6 | SK-B150912×4 | KNOB MONITOR WHITE PART |
| 13-VR906 | EV-104253 | VR ROTARY 16P20×3T AXIS |
| 13-VR903, 908 | EV-104253 | VR ROTARY 16L10×6W B103 |
| 13-VR907 | EV-104254 | VR ROTARY 16L10×6W 103 |

CUSTOM-2

ASSEMBLY BLOCK



FINAL ASSEMBLY BLOCK

## 14. ASSEMBLY BLOCK

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 14-1A | EW-306427 | ⚠ AC CORD 2 CORES KP-211( VFF 2 )[E |
| 14-1B | EW-350838 | ⚠ AC CORD 2 CORES KP-11 SJT 4AWG18 UC [C, A] |
| 14-1C | EW-311767 | ⚠ AC CORD 2 CORES KP-419C( KS-15 DV )[U, E] |
| 14-1D | EW-321800 | ⚠ AC CORD 2 CORES KS-1U GTBL-2F R [B] |
| 14-1E | EW-321801 | ⚠ AC CORD 2 CORES KP-360(KS-15 S)[ |
| 14-2A | EZ-615045 | STRAIN RELIEF SR-4N-4 [J] |
| 14-2B | EZ-302806 | STRAIN RELIEF SR-4N-4 [C, A] |
| 14-3 | SA-311742 | ROUND FOOT |
| 14-4 | ZS-332260 | T2BB30×08STL CMT CUP |
| 14-5 | ZS-541900 | ST BID4O×06STL BNI |
| 14-6 | TC-690833 | SPACER 4×10 |
| 14-7 | ZS-535509 | T1BED30×20STL CMT |
| 14-8 | ZW-317644 | PW32×100×05STL BNI |
| 14-9 | BK-354243 | KEYBOARD BLK DSK-704/DEEY |
| 14-10 | ZS-334250 | BID50×08STL BNI |
| 14-11 | ZS-611232 | BID40×10TL BNI |
| 14-12 | ZW-412267 | N FRANGE 40STL CMT |
| 14-13 | SE-337878 | KNOB BASE (C) |
| 14-14 | SK-354544 | KNOB BASE (B) |
| 14-15 | MS6-314988 | SPACER 4×10 |
| 14-16 | EJ-357148 | FUSE HOLDER NPFH75-01-010 |
| 14-17 | MZ-310512 | WIRE LEAD EARTH BAO×2 |
| 14-18 | MH-358770 | PROP HOLDER |
| 14-T901A | BT-354247 | ⚠ TRANS POWER AX-80 T-10 [E |
| 14-T901B | BT-354246 | ⚠ TRANS POWER AX-80 T-20 [C, A] |
| 14-T901C | BT-354245 | ⚠ TRANS POWER AX-80 T-70 [U, E, B, S] |
| 14-C2, 3 | EC-358430 | ⚠ C CE V B 102M 400AC [C, A] |
| 14-VR801, 802 | EV-338043 | VR ROTARY 16L1104(0L)B103 Ex20 |
| 14-VR803 | EV-316236 | VR ROTARY 24L15×1() B103 |
| 14-J901x | EJ-301573 | ⚠ SOCKET INLET S-08453 E ZP [U, E, B, S] |
| 14-J902 to 904 | EJ-354235 | DIN 5 TCD0413-0101 5P |
| 14-SW901A | ES-354238 | ⚠ SW SEESAW SDD2(A)-1153A 01-1 (J, C, E, B, S) |
| 14-SW901B | ES-355573 | ⚠ SW SEESAW SDD2(B)-0953A T-ch 5 [C, A] |
| 14-SW902x | ES-346870 | ⚠ SW SELECTOR YKS13-0802 02-6 (U, E, B, S) |

| REF. NO. | PARTS NO. | DESCRIPTION |
|---|---|---|
| 14-SW903 | ES-337045 | SW SLIDE SSBB0404A 2-03-02N |
| 14-F1A | EF-326616 | ⚠ FUSE TSC A 250V 3.15A [J] |
| 14-F1B | EF-309595 | ⚠ FUSE TSC 125V 2.50A [C, A] |
| 14-F1C, F2 | EF-602550 | ⚠ FUSE SEMKO T 1.25A 250V [U, E, B, S] |
| 14-F3A | EF-326616 | ⚠ FUSE TSC A 250V 3.15A [J] |
| 14-F3B | EF-327680 | ⚠ FUSE TSC 125V 3.15A [C, A] |
| 14-F3C | EF-691005 | ⚠ FUSE SEMKO T 3.15A 250V [U, E, B, S] |
| 14-F4A | EF-311035 | ⚠ FUSE TSC A 250V 1.60A [J] |
| 14-F4B | EF-309047 | ⚠ FUSE TSC 125V 1.60A [C, A] |
| 14-F4C | EF-250344 | ⚠ FUSE SEMKO T 800MA 250V [U, E, B, S] |
| 14-F5A | EF-311034 | ⚠ FUSE TSC A 250V 1.60A [J] |
| 14-F5B | EF-309047 | ⚠ FUSE TSC 125V 1.60A [C, A] |
| 14-F5C | EF-250344 | ⚠ FUSE SEMKO T 800MA 250V [U, E, B, S] |
| 14-F6A | EF-306648 | ⚠ FUSE TSC A 250V 1.25A [J] |
| 14-F6B | EF-309192 | ⚠ FUSE TSC 125V 1.25A [C, A] |
| 14-F6C | EF-602596 | ⚠ FUSE SEMKO T 1.25A [U, E, B, S] |

## 15. FINAL ASSEMBLY BLOCK

| REF. NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 15-1A | BD-B354517A | PANEL FRONT AX80[E PART [J] |
| 15-1B | BD-B354517B | PANEL FRONT AX80 [A, C] PART [C, A] |
| 15-1C | BD-B354517C | PANEL FRONT AX80 [B, V, B, S, U] PART [U, E, B, S] |
| 15-2 | SZ-334558 | SHEET MEMBRANE |
| 15-3 | SP-334531 | PANEL KEYBOARD |
| 15-4 | ZS-447701 | T2BB30×06STL BNI (PANEL KEYBOARD PIN) |
| 15-5 | SP-354531B | SIDE PLATE (L) PAINT |
| 15-6 | ZS-347736 | ST BID40×20STL BNI |
| 15-7 | ZW-335748 | PW42×096×050STL BNI |
| 15-8 | SE-336519 | WINDOW FRONT FLD |
| 15-9 | SK-B352552X5 | KNOB MONITOR BLUE PART |
| 15-10 | SK-B352552X6 | KNOB MONITOR WHITE PART |
| 15-11 | SK-354540 | KNOB DATA |
| 15-12 | SP-354549B | SIDE PLATE (R) PAINT |

## AX80

| PART NO. | REF. NO. | PART NO. | REF. NO. | PART NO. | REF. NO. | PART NO. | REF. NO. |
|---|---|---|---|---|---|---|---|
| BA-U3013A030A | 1-2 | ED-301911 | 2-D102 | EH-335561 | 3-IR6 | EI-154099 | 3-IC3 |
| BA-U3013A040A | 1-3 | ED-301911 | 2-D603 | EH-335561 | 3-IR8 | EI-154099 | 3-IC2 |
| BA-U3013A050A | 1-5A | ED-301911 | 2-D104 | EH-335579 | 3-IR7 | EI-154099 | 3-IC8 |
| BA-U3013A050B | 1-5B | ED-301911 | 2-D706 | EH-335579 | 3-IR8 | EI-154099 | 3-IC5 |
| BA-U3013A050C | 1-5C | ED-301911 | 2-D803 | EH-335580 | 3-IR6 | EI-157060 | 3-IC2 |
| BA-U3013A130A | 1-3A | ED-301911 | 2-D101 | EH-335580 | 3-IR6 | EI-154123 | 3-X1 |
| BA-U3013A130B | 1-3B | ED-301911 | 2-D404 | EH-335580 | 3-IR8 | EI-154143 | 3-IC4A |
| BA-U3013A150A | 1-4 | ED-301911 | 2-D701 | EH-335580 | 3-IR8 | EI-154146 | 3-IC23 |
| BA-U3013A140A | 1-7 | ED-301911 | 2-D601 | EI-213390 | 3-IC707 | EI-154146 | 3-IC22 |
| BA-U3013A050A | 1-6A | ED-301911 | 2-D705 | EI-213390 | 3-IC702 | EI-154146 | 3-IC23 |
| BA-U3013A050B | 1-6B | ED-301911 | 2-D403 | EI-213390 | 3-IC802 | EI-154146 | 3-IC24 |
| BA-U3013A050C | 1-6C | ED-301911 | 2-D202 | EI-213390 | 3-IC7 | EI-154146 | 3-IC26 |
| BD-B1545076 | 15-1A | ED-301911 | 2-D203 | EI-213390 | 3-IC101 | EI-154146 | 3-IC21 |
| BD-B1545078 | 15-1B | ED-301911 | 2-D703 | EI-213390 | 3-IC102 | EI-154147 | 3-IC6 |
| BD-B1545076 | 15-1C | ED-301911 | 2-D105 | EI-213390 | 3-IC507 | EI-154147 | 3-IC5 |
| BG-U3015A030A | 13-1 | ED-301911 | 2-D107 | EI-213390 | 3-IC701 | EI-154149 | 3-IC10 |
| BK-B154203 | 14-9 | ED-301911 | 2-D2 | EI-213390 | 3-IC901 | EI-154149 | 3-IC9 |
| ET-154245 | 14-TX01C | ED-301911 | 2-D106 | EI-213390 | 3-IC507 | EI-154152 | 3-IC1 |
| ET-154248 | 14-TX01B | ED-301911 | 2-D201 | EI-213390 | 3-IC402 | EI-154152 | 3-IC8 |
| ET-154249 | 14-TX01A | ED-301911 | 2-D7 | EI-213390 | 3-IC801 | EI-154153 | 3-IC3 |
| EC-123867 | 10-C6 | ED-301911 | 1-D9 | EI-213390 | 3-IC601 | EI-154153 | 3-IC12 |
| EC-123867 | 10-C11 | ED-301911 | 1-D6 | EI-213390 | 3-IC502 | EI-154138 | 3-IC17 |
| EC-123867 | 2-C822 | ED-301911 | 1-D3 | EI-213390 | 3-IC501 | EI-154138 | 3-IC29 |
| EC-123867 | 2-C822 | ED-301911 | 1-D4 | EI-213390 | 3-IC201 | EI-154139 | 3-IC31 |
| EC-123867 | 2-C322 | ED-301911 | 1-D1 | EI-213390 | 3-IC502 | EI-154102 | 3-IC28 |
| EC-123867 | 2-C322 | ED-301911 | 1-D1 | EI-213390 | 3-IC602 | EI-154168 | 3-X2 |
| EC-123867 | 2-C322 | ED-301911 | 10-D6 | EI-213390 | 3-IC107 | EI-154173 | 10-IC3 |
| EC-123867 | 2-C422 | ED-301911 | 15-D2 | EI-213390 | 3-IC702 | EI-154184 | 3-IC606A |
| EC-123867 | 2-C222 | ED-301911 | 12-D1 | EI-213390 | 3-IC701 | EI-154184 | 3-IC706A |
| EC-123867 | 2-C722 | ED-306010 | 6-D1 | EI-302233 | 3-IC2 | EI-154184 | 3-IC706A |
| EC-138411 | 11-C1 | ED-310387 | 12-D1 | EI-302233 | 3-IC6 | EI-154184 | 3-IC606A |
| EC-347965 | 10-C18 | ED-313614 | 10-D1 | EI-302233 | 3-IC9 | EI-154184 | 3-IC706A |
| EC-357010 | 2-C807 | ED-329038 | 2-D1 | EI-302233 | 3-IC4 | EI-154184 | 3-IC106A |
| EC-357010 | 2-C305 | ED-337283 | 10-D1 | EI-302233 | 3-IC3 | EI-154184 | 3-IC606A |
| EC-357010 | 2-C403 | ED-344280 | 2-D409 | EI-304617 | 2-IC703 | EI-154184 | 3-IC206A |
| EC-357055 | 2-C305 | ED-344280 | 2-D408 | EI-304617 | 2-IC103 | EI-154197 | 3-IC27 |
| EC-357055 | 2-C705 | ED-344280 | 2-D509 | EI-304617 | 2-IC704 | EI-154232 | 3-IC11 |
| EC-357055 | 2-C105 | ED-344280 | 2-D710 | EI-304617 | 2-IC504 | EI-154283 | 3-IC28 |
| EC-357055 | 2-C205 | ED-344280 | 2-D310 | EI-304617 | 2-IC504 | EI-1553560 | 3-IC50 |
| EC-357055 | 2-C805 | ED-344280 | 2-D209 | EI-304617 | 2-IC503 | EI-155575 | 3-IC16 |
| EC-358456 | 10-C3 | ED-344280 | 2-D808 | EI-304617 | 2-IC104 | EI-155578 | 3-IC7 |
| EC-358456 | 10-C2 | ED-344280 | 2-D809 | EI-304617 | 2-IC505 | EI-559843 | 10-IC1 |
| ED-301911 | 2-D501 | ED-346280 | 2-D808 | EI-308727 | 2-IC505 | EI-559646 | 10-IC3 |
| ED-301911 | 2-D607 | ED-344280 | 2-D508 | EI-308727 | 2-IC705 | EI-155771 | 6-IC5 |
| ED-301911 | 2-D801 | ED-344280 | 2-D309 | EI-308727 | 2-IC505 | EI-155771 | 6-IC2 |
| ED-301911 | 2-D405 | ED-344280 | 2-D308 | EI-308727 | 2-IC105 | EI-156289 | 10-IC4 |
| ED-301911 | 2-D408 | ED-344280 | 2-D609 | EI-307644 | 9-IC1 | EI-157060 | 3-IC1 |
| ED-301911 | 2-D607 | ED-344280 | 2-D109 | EI-310045 | 3-IC18 | EI-159650 | 3-IC806B |
| ED-301911 | 2-D604 | ED-344280 | 2-D709 | EI-310045 | 3-IC19 | EI-159650 | 3-IC506B |
| ED-301911 | 2-D807 | ED-344280 | 2-D108 | EI-310045 | 3-IC31 | EI-159650 | 3-IC706B |
| ED-301911 | 2-D602 | ED-354114 | 6-D13 | EI-324235 | 2-IC9 | EI-159650 | 2-IC506B |
| ED-301911 | 2-D603 | ED-354114 | 6-D8 | EI-324235 | 2-IC20 | EI-159650 | 3-IC406B |
| ED-301911 | 2-D604 | ED-354114 | 6-D6 | EI-324235 | 2-IC13 | EI-159650 | 3-IC606B |
| ED-301911 | 2-D507 | ED-354114 | 6-D7 | EI-324235 | 2-IC8 | EI-159650 | 2-IC106B |
| ED-301911 | 2-D603 | ED-354114 | 6-D4 | EI-324235 | 2-IC10 | EI-159650 | 3-IC206B |
| ED-301911 | 2-D704 | ED-354114 | 6-D12 | EI-324235 | 2-IC19 | EI-559631 | 3-IC40B |
| ED-301911 | 2-D702 | ED-354114 | 6-D11 | EI-324235 | 2-IC14 | EI-301513 | 14-IN01A |
| ED-301911 | 2-D608 | ED-354114 | 6-D10 | EI-324235 | 2-IC13 | EI-548202 | 5-1 |
| ED-301911 | 2-D204 | ED-354114 | 6-D5 | EI-324235 | 2-IC12 | EI-313031 | 9-J2 |
| ED-301911 | 2-D103 | ED-354114 | 6-D14 | EI-324235 | 2-IC18 | EI-334235 | 14-IN03 |
| ED-301911 | 2-D102 | ED-354114 | 6-D9 | EI-324235 | 2-IC15 | EI-334235 | 14-IN04 |
| ED-301911 | 2-D207 | ED-357010 | 10-D1 | EI-324235 | 2-IC17 | EI-334235 | 14-IN02 |
| ED-301911 | 2-D506 | ED-357013 | 10-D2 | EI-324235 | 2-IC16 | EI-357148 | 14-1A |
| ED-301911 | 2-D203 | ED-357010 | 10-D6 | EI-324235 | 2-IC23 | EI-357159 | 9-J4 |
| ED-301911 | 2-D206 | EP-258144 | 14-F6C | EI-324235 | 2-IC22 | EI-357159 | 9-J5 |
| ED-301911 | 2-D806 | EP-258144 | 14-F5C | EI-324235 | 2-IC21 | EI-357159 | 9-J1 |
| ED-301911 | 2-D501 | EP-308940 | 14-F6A | EI-324235 | 2-IC27 | EI-357159 | 9-J6 |
| ED-301911 | 2-D502 | EP-308956 | 14-F1B | EI-324235 | 2-IC26 | EI-357159 | 9-J3 |
| ED-301911 | 2-D607 | EP-308847 | 14-F5B | EI-324235 | 2-IC25 | EI-358467 | 2-S2 |
| ED-301911 | 2-D308 | EP-308847 | 14-F6B | EI-324235 | 2-IC24 | EI-358467 | 2-S3 |
| ED-301911 | 2-D302 | EP-308362 | 14-F6B | EI-330391 | 3-IC14 | EI-358467 | 2-S4 |
| ED-301911 | 2-D707 | EP-311839 | 14-F6A | EI-330391 | 3-IC15 | EI-358467 | 2-S1 |
| ED-301911 | 2-D503 | EP-311839 | 14-F5A | EI-330391 | 3-IC13 | EM-354057 | 4-IN1 |
| ED-301911 | 2-D504 | EP-325080 | 14-F5B | EI-336955 | 10-IC2 | EM-354057 | 4-IN2 |
| ED-301911 | 2-D504 | EP-329839 | 14-F1A | EI-355515 | 6-IC1 | EM-354057 | 5-IN3 |
| ED-301911 | 2-D307 | EP-329839 | 14-F5A | EI-354098 | 4-IC1 | EM-354057 | 5-IN5 |
| ED-301911 | 2-D503 | EP-602750 | 14-F6C | EI-354098 | 5-IC1 | EM-354057 | 5-IN1 |
| ED-301911 | 2-D505 | EP-602750 | 14-F5C | EI-354099 | 4-IC3 | EM-356113 | 6-D1 |
| ED-301911 | 2-D401 | EP-602750 | 14-F5 | EI-354099 | 4-IC5 | EM-356113 | 6-D2 |
| ED-301911 | 2-D402 | EP-691007 | 14-F5C | EI-354099 | 5-IC6 | EM-356113 | 6-D3 |

# INDEX


| PART NO. | REF. NO. | PART NO. | REF. NO. | PART NO. | REF. NO. | PART NO. | REF. NO. |
|---|---|---|---|---|---|---|---|
| EO-318635 | 9-CJ | ES-354115 | 8-SW8 | EV-358043 | 14-VR502 | | |
| EO-318635 | 9-CJ2 | ES-354115 | 8-SW1 | EW-308427 | 14-1A | | |
| EO-334224 | 11-PJ1 | ES-354115 | 8-SW9 | EW-315767 | 14-1C | | |
| EQ-348939 | 12-CJ1 | ES-354115 | 8-SW13 | EW-322480 | 14-1D | | |
| ER-302241 | 10-RJ | ES-354115 | 8-SW6 | EW-322481 | 14-1E | | |
| ER-306805 | 9-R7 | ES-354115 | 8-SW10 | EW-358858 | 14-1B | | |
| ER-306805 | 9-R8 | ES-354115 | 8-SW7 | EZ-208473 | 10-J | | |
| ER-320928 | 3-PR1 | ES-354115 | 8-SW5 | EZ-302906 | 14-2B | | |
| ER-357538 | 2-R606 | ES-354115 | 8-SW2 | EZ-354169 | 5-BT1 | | |
| ER-357538 | 2-R106 | ES-354216 | 14-SW901A | EZ-651945 | 14-2A | | |
| ER-357538 | 2-R304 | ES-355573 | 14-SW901B | MH-314988 | 14-15 | | |
| ER-357538 | 2-R504 | ES-357045 | 14-SW905 | MH-358770 | 14-18 | | |
| ER-357538 | 2-R704 | ET-308143 | 13-TR1 | MJ-354352 | 15-3 | | |
| ER-357538 | 2-R406 | ET-332778 | 2-TR601 | MZ-358513 | 14-17 | | |
| ER-357538 | 2-R606 | ET-332778 | 2-TR702 | SA-311362 | 14-1 | | |
| ER-357538 | 2-R206 | ET-332778 | 2-TR301 | SE-354539 | 15-8 | | |
| ER-358800 | 10-RJ | ET-332778 | 2-TR102 | SE-357978 | 14-13 | | |
| ER-363989 | 2-R841 | ET-332778 | 2-TR602 | SK-B45295ZK4 | 15-6 | | |
| ER-363989 | 2-R341 | ET-332778 | 2-TR1 | SK-B45295ZK4 | 15-10 | | |
| ER-363989 | 2-R441 | ET-332778 | 2-TR401 | SK-B45295ZK5 | 15-9 | | |
| ER-363989 | 2-R341 | ET-332778 | 2-TR201 | SK-354340 | 15-11 | | |
| ER-363989 | 2-R741 | ET-332778 | 2-TR701 | SK-354344 | 14-14 | | |
| ER-363989 | 2-R141 | ET-332778 | 2-TR601 | SP-354533 | 15-3 | | |
| ER-363989 | 2-R241 | ET-332778 | 2-TR402 | SP-354533B | 15-5 | | |
| ER-363989 | 2-R641 | ET-332778 | 2-TR101 | SP-354534B | 15-12 | | |
| ER-553084 | 2-R328 | ET-332778 | 2-TR301 | SP-354536 | 15-2 | | |
| ER-553084 | 2-R628 | ET-332778 | 2-TR202 | SZ-354538 | 15-2 | | |
| ER-553084 | 2-R428 | ET-332778 | 2-TR802 | TC-690851 | 14-4 | | |
| ER-553084 | 2-R728 | ET-332778 | 2-TR302 | ZG-354933 | 15-4 | | |
| ER-553084 | 2-R128 | ET-332778 | 2-TR302 | ZS-310984 | 15-1 | | |
| ER-553084 | 2-R628 | ET-332778 | 6-TR7 | ZS-341988 | 14-5 | | |
| ER-553084 | 2-R528 | ET-332778 | 6-TR4 | ZS-342736 | 15-6 | | |
| ER-553084 | 2-R228 | ET-332778 | 6-TR5 | ZS-351260 | 14-4 | | |
| ER-553582 | 2-R327 | ET-332778 | 6-TR6 | ZS-354238 | 14-10 | | |
| ER-553582 | 2-R127 | ET-332778 | 6-TR3 | ZS-355369 | 14-7 | | |
| ER-553582 | 2-R127 | ET-332778 | 6-TR1 | ZS-411232 | 14-11 | | |
| ER-553582 | 2-R727 | ET-332778 | 6-TR2 | ZS-447761 | 15-4 | | |
| ER-553582 | 2-R827 | ET-347026 | 10-TR1 | ZW-355644 | 14-8 | | |
| ER-553582 | 2-R127 | ET-354167 | 3-PS1 | ZW-411267 | 14-12 | | |
| ER-553582 | 2-R627 | ET-357063 | 3-PS2 | ZW-355768 | 15-7 | | |
| ER-553582 | 2-R427 | ET-403413 | 3-TR1 | ZW-432235 | 10-2 | | |
| ER-555564 | 3-R25 | ET-491053 | 2-TR704 | | | | |
| ES-349979 | 14-SW901 | ET-491053 | 2-TR403 | | | | |
| ES-354133 | 6-SW10 | ET-491053 | 2-TR702 | | | | |
| ES-354133 | 6-SW5 | ET-491053 | 2-TR304 | | | | |
| ES-354133 | 6-SW2 | ET-491053 | 2-TR304 | | | | |
| ES-354133 | 6-SW5 | ET-491053 | 2-TR603 | | | | |
| ES-354133 | 6-SW7 | ET-491053 | 2-TR303 | | | | |
| ES-354133 | 6-SW6 | ET-491053 | 2-TR103 | | | | |
| ES-354133 | 6-SW12 | ET-491053 | 2-TR203 | | | | |
| ES-354133 | 6-SW11 | ET-491053 | 2-TR204 | | | | |
| ES-354133 | 6-SW4 | ET-491053 | 2-TR604 | | | | |
| ES-354133 | 6-SW1 | ET-491053 | 2-TR104 | | | | |
| ES-354133 | 6-SW9 | ET-491053 | 2-TR404 | | | | |
| ES-354133 | 6-SW8 | ET-491053 | 2-TR503 | | | | |
| ES-354133 | 6-SW14 | ET-491053 | 2-TR803 | | | | |
| ES-354133 | 6-SW13 | ET-491053 | 2-TR804 | | | | |
| ES-354133 | 7-SW18 | EV-307695 | 2-VR201 | | | | |
| ES-354133 | 7-SW4 | EV-307695 | 2-VR401 | | | | |
| ES-354133 | 7-SW19 | EV-307695 | 2-VR501 | | | | |
| ES-354133 | 7-SW17 | EV-307695 | 2-VR601 | | | | |
| ES-354133 | 7-SW15 | EV-307695 | 2-VR801 | | | | |
| ES-354133 | 7-SW12 | EV-307695 | 2-VR301 | | | | |
| ES-354133 | 7-SW16 | EV-307695 | 2-VR151 | | | | |
| ES-354133 | 7-SW3 | EV-307695 | 2-VR701 | | | | |
| ES-354133 | 7-SW2 | EV-330770 | 2-VR202 | | | | |
| ES-354133 | 7-SW13 | EV-330770 | 2-VR102 | | | | |
| ES-354133 | 7-SW1 | EV-330770 | 2-VR302 | | | | |
| ES-354133 | 7-SW9 | EV-330770 | 2-VR502 | | | | |
| ES-354133 | 7-SW8 | EV-330770 | 2-VR1 | | | | |
| ES-354133 | 7-SW11 | EV-330770 | 2-VR402 | | | | |
| ES-354133 | 7-SW10 | EV-330770 | 2-VR802 | | | | |
| ES-354133 | 7-SW9 | EV-330770 | 2-VR702 | | | | |
| ES-354133 | 7-SW8 | EV-330770 | 2-VR602 | | | | |
| ES-354133 | 7-SW7 | EV-354253 | 13-VR904 | | | | |
| ES-354133 | 7-SW14 | EV-354254 | 13-VR907 | | | | |
| ES-354133 | 8-SW4 | EV-354255 | 13-VR906 | | | | |
| ES-354133 | 8-SW5 | EV-354255 | 13-VR905 | | | | |
| ES-354133 | 8-SW12 | EV-354256 | 14-VR903 | | | | |
| ES-354133 | 8-SW11 | EV-358043 | 14-VR901 | | | | |

# AKAI

## MODEL AX80

SECTION 3

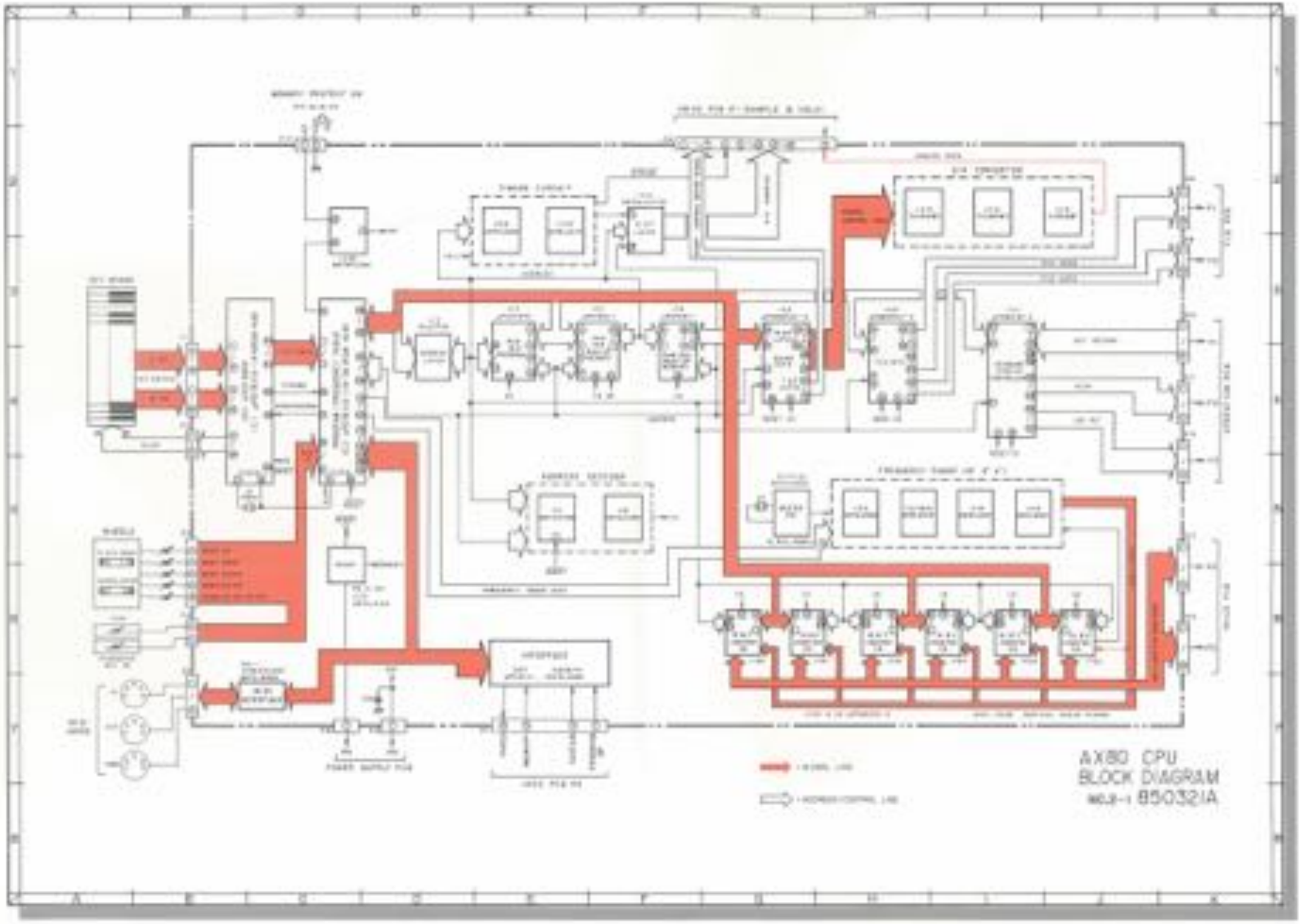
## SCHEMATIC DIAGRAM AND PC BOARDS

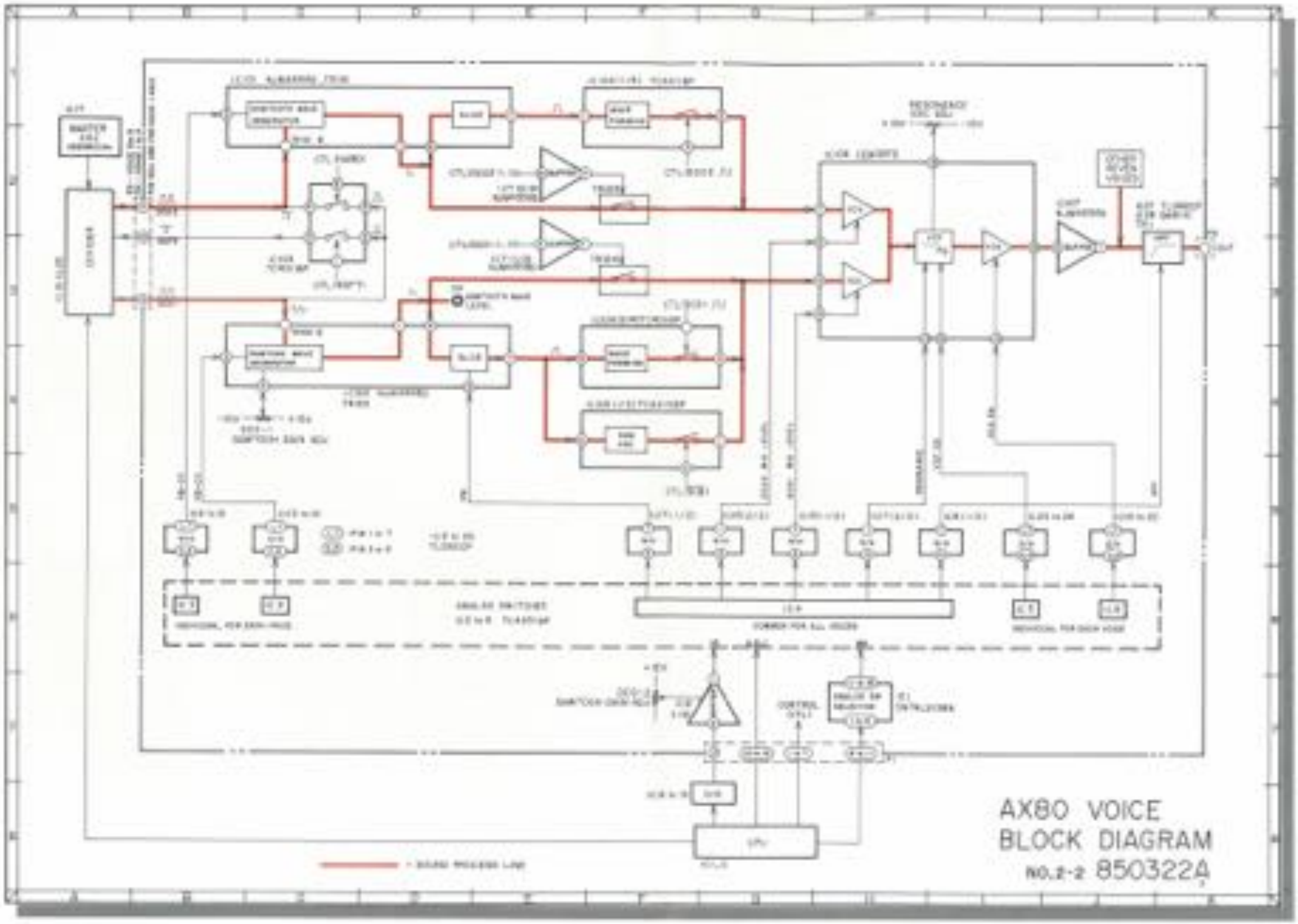
TABLE OF CONTENTS


1. CPU BLOCK DIAGRAM ..... 2
2. VOICE BLOCK DIAGRAM ..... 3
3. CONNECTION DIAGRAM ..... 4
4. OPERATION PC BOARD ..... 5
5. POWER SUPPLY SCHEMATIC DIAGRAM ..... 6
6. POWER SUPPLY PC BOARD ..... 7
7. FLD (1) (2) SCHEMATIC DIAGRAM ..... 8
8. FLD (1) (2) PC BOARD ..... 9
9. OPERATION (1) SCHEMATIC DIAGRAM ..... 10
10. OPERATION (1) PC BOARD ..... 11
11. CPU SCHEMATIC DIAGRAM ..... 12
12. CPU PC BOARD ..... 13
13. VOICE SCHEMATIC DIAGRAM ..... 14
14. VOICE PC BOARD ..... 15

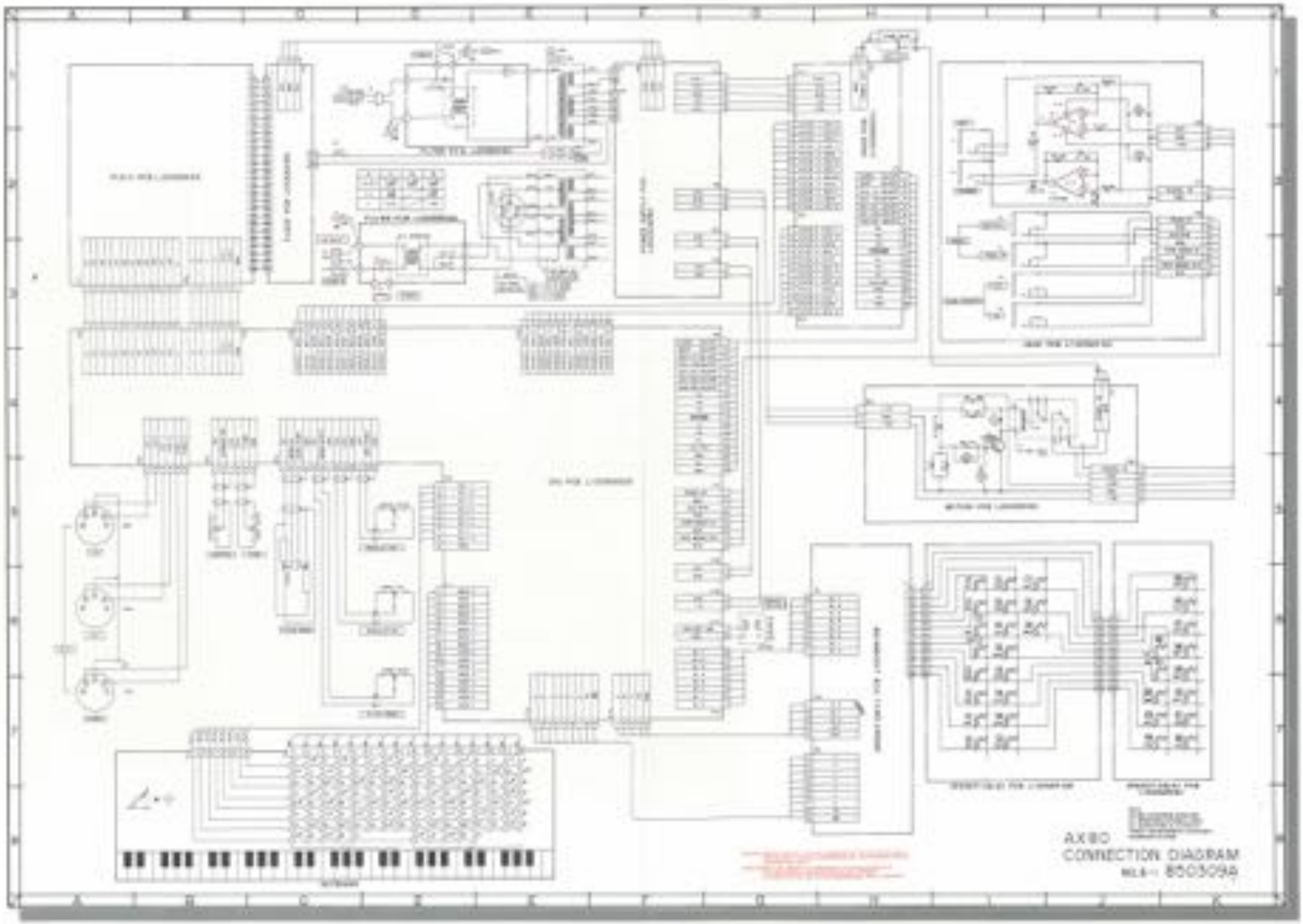

0u92


This Manual is FOR INTERNAL USE ONLY and must not be made available to unauthorized personal. No part of this manual may be reproduced in any form without permission from AKAI ELECTRIC CO., LTD., Tokyo, Japan.

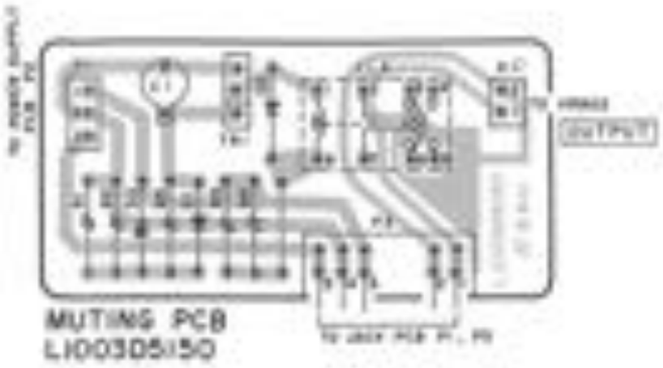

AX80 CPU
BLOCK DIAGRAM
850321A



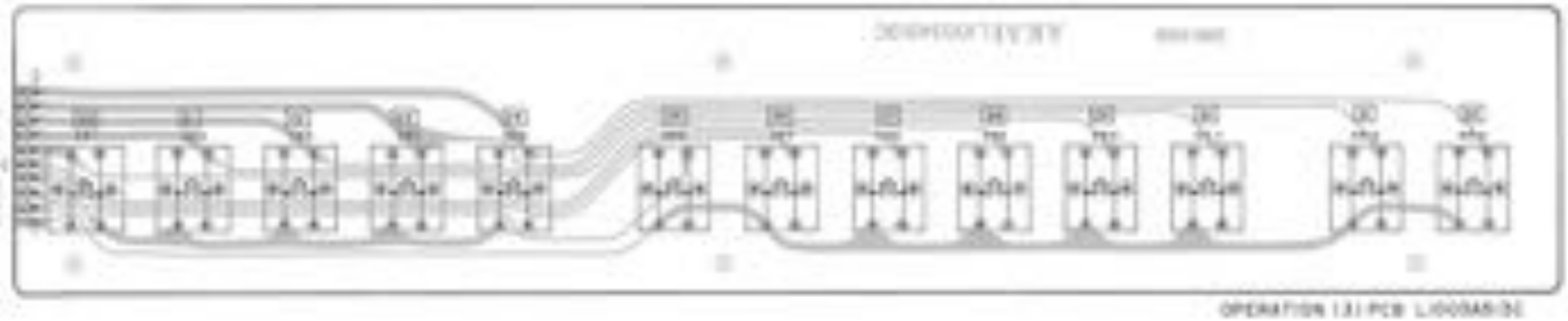
AX80 VOICE
BLOCK DIAGRAM
NO.2-2 850322A

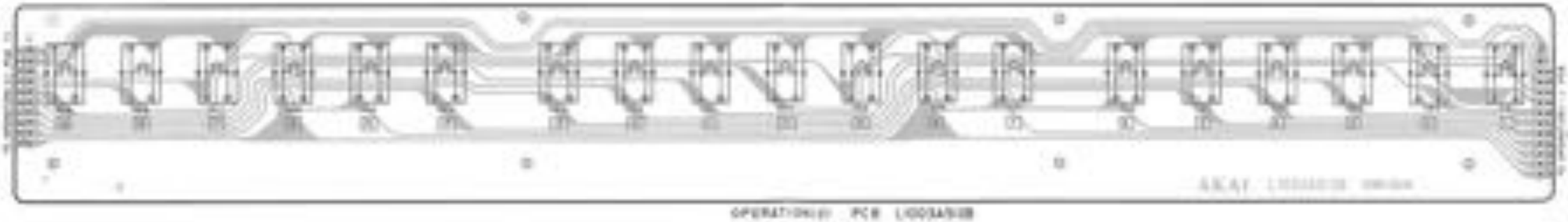

AX80
CONNECTION DIAGRAM

FILTER PCB L10030540

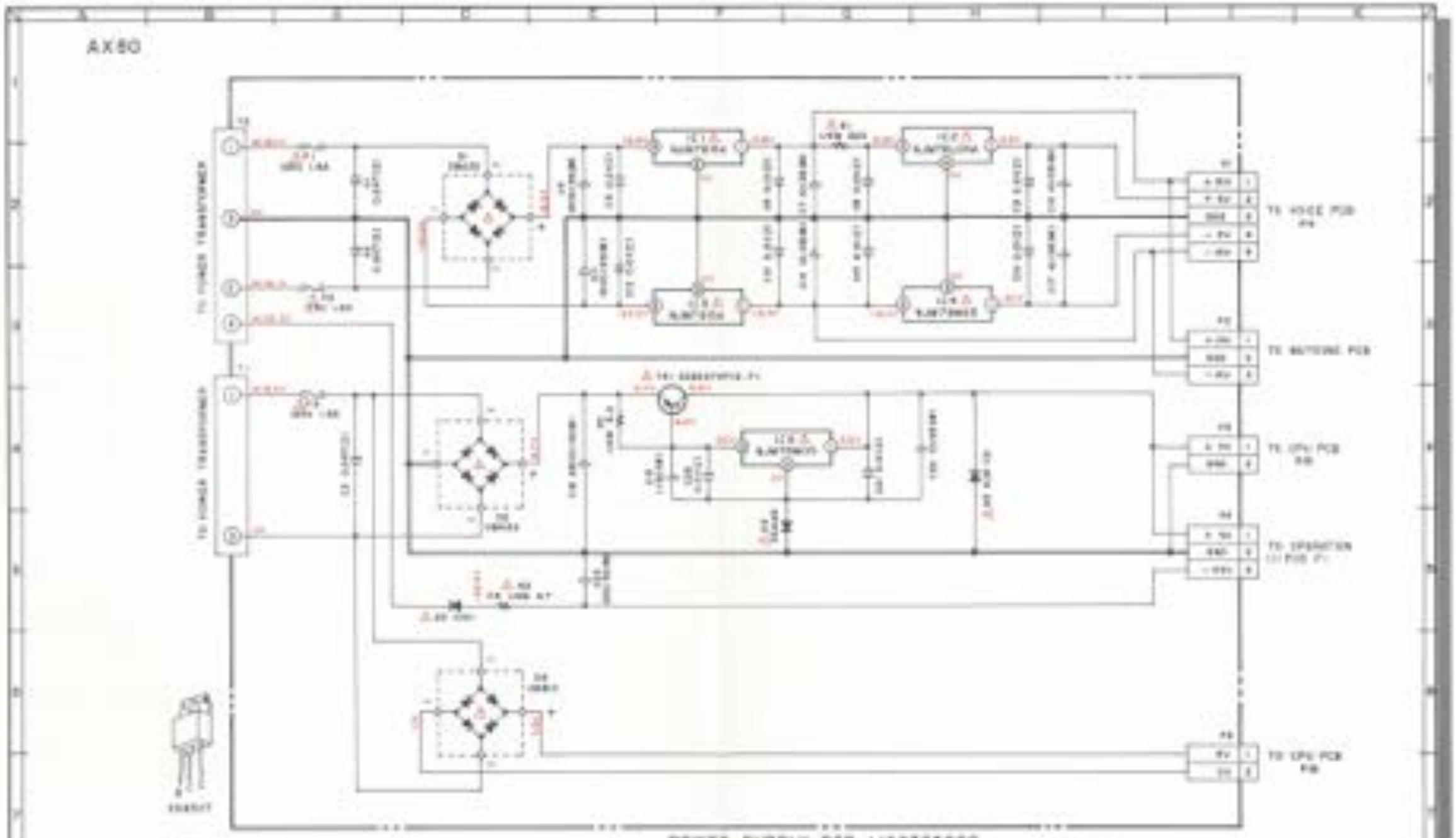

MUTING PCB
L10030510

JACK PCB L10030520

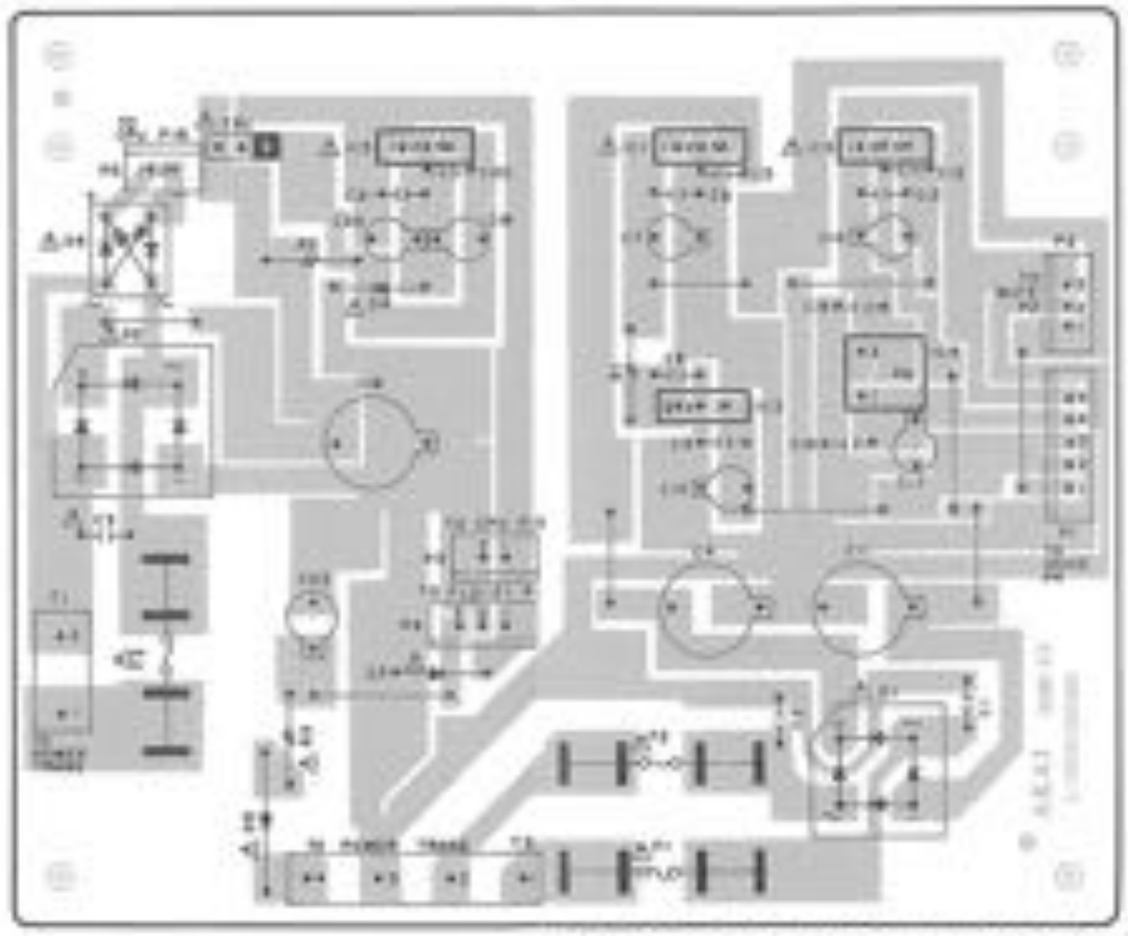

OPERATION (3) PCB L10030530


OPERATION(2) PCB L10030510

AX80



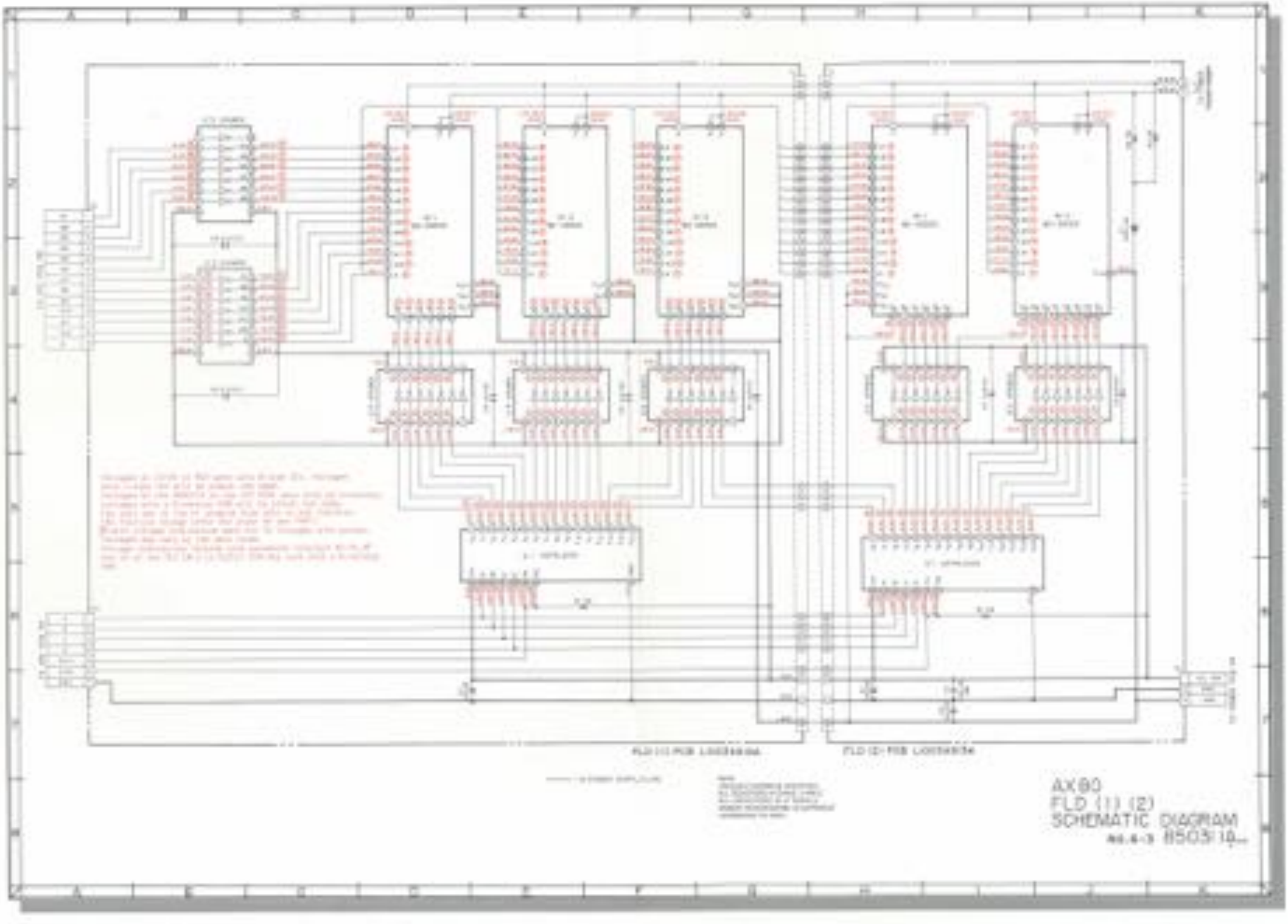

# AX80
# POWER SUPPLY
# SCHEMATIC DIAGRAM
NO.6-2 850310A

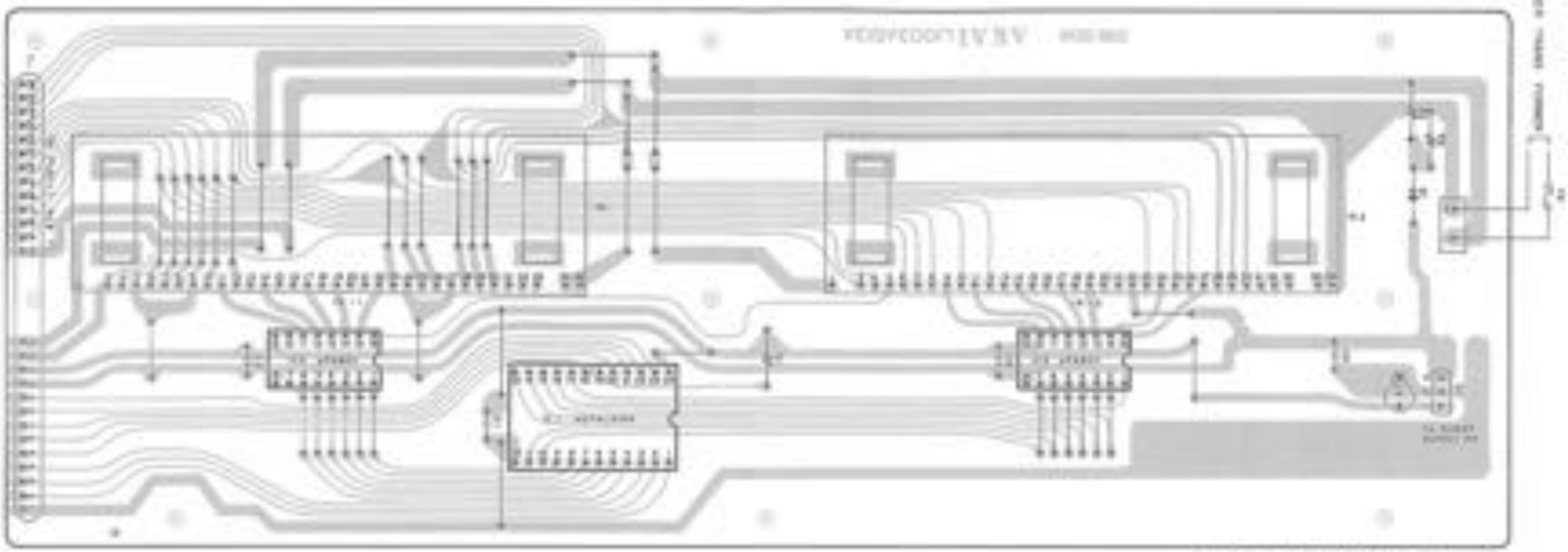


POWER SUPPLY PCB LIC03C5090

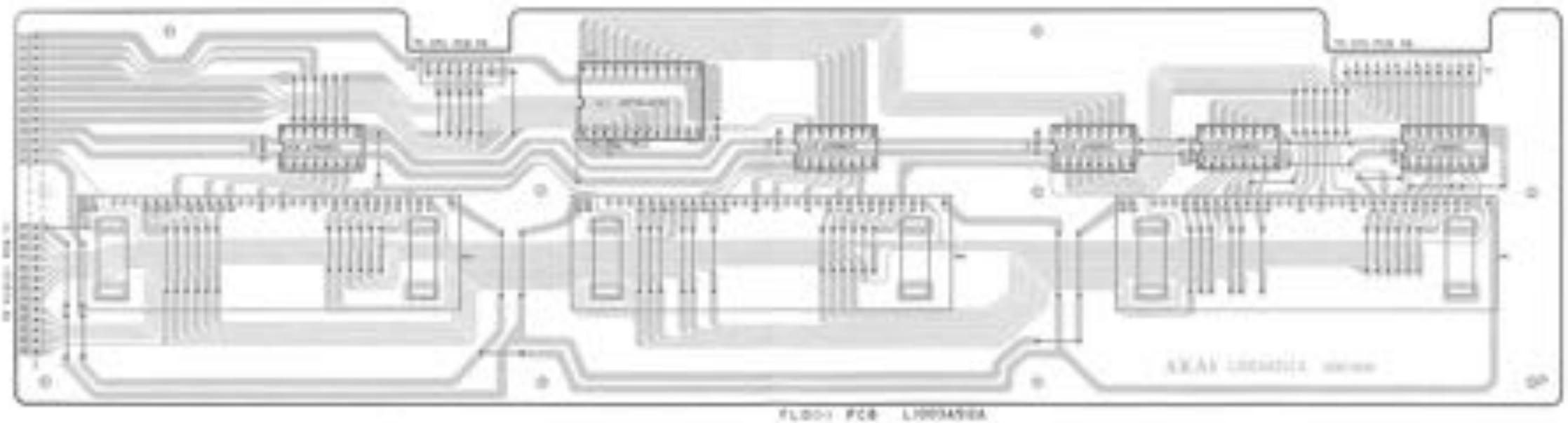
PNP TRANSISTOR

2SB507

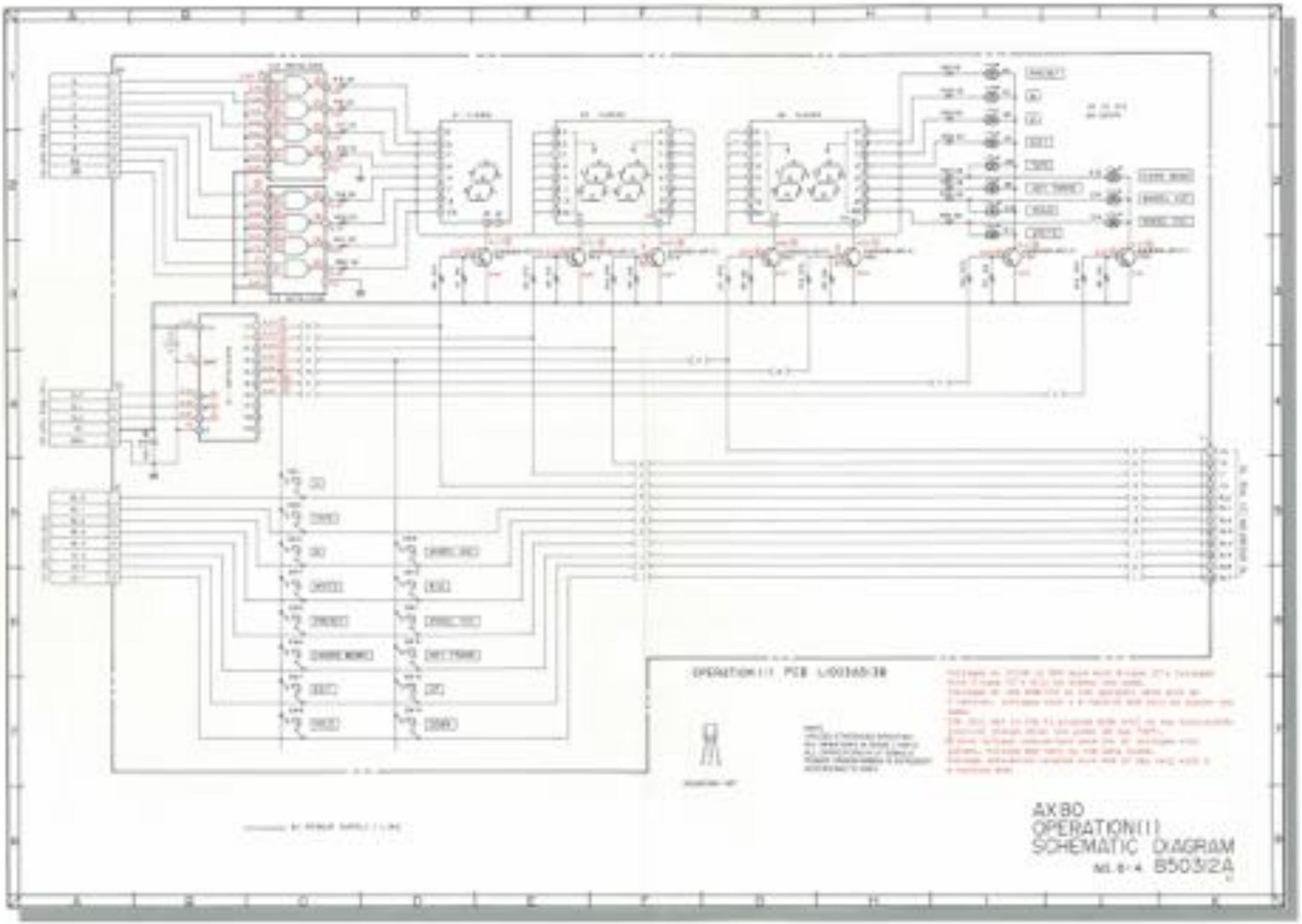

AX80
FLD (1) (2)
SCHEMATIC DIAGRAM

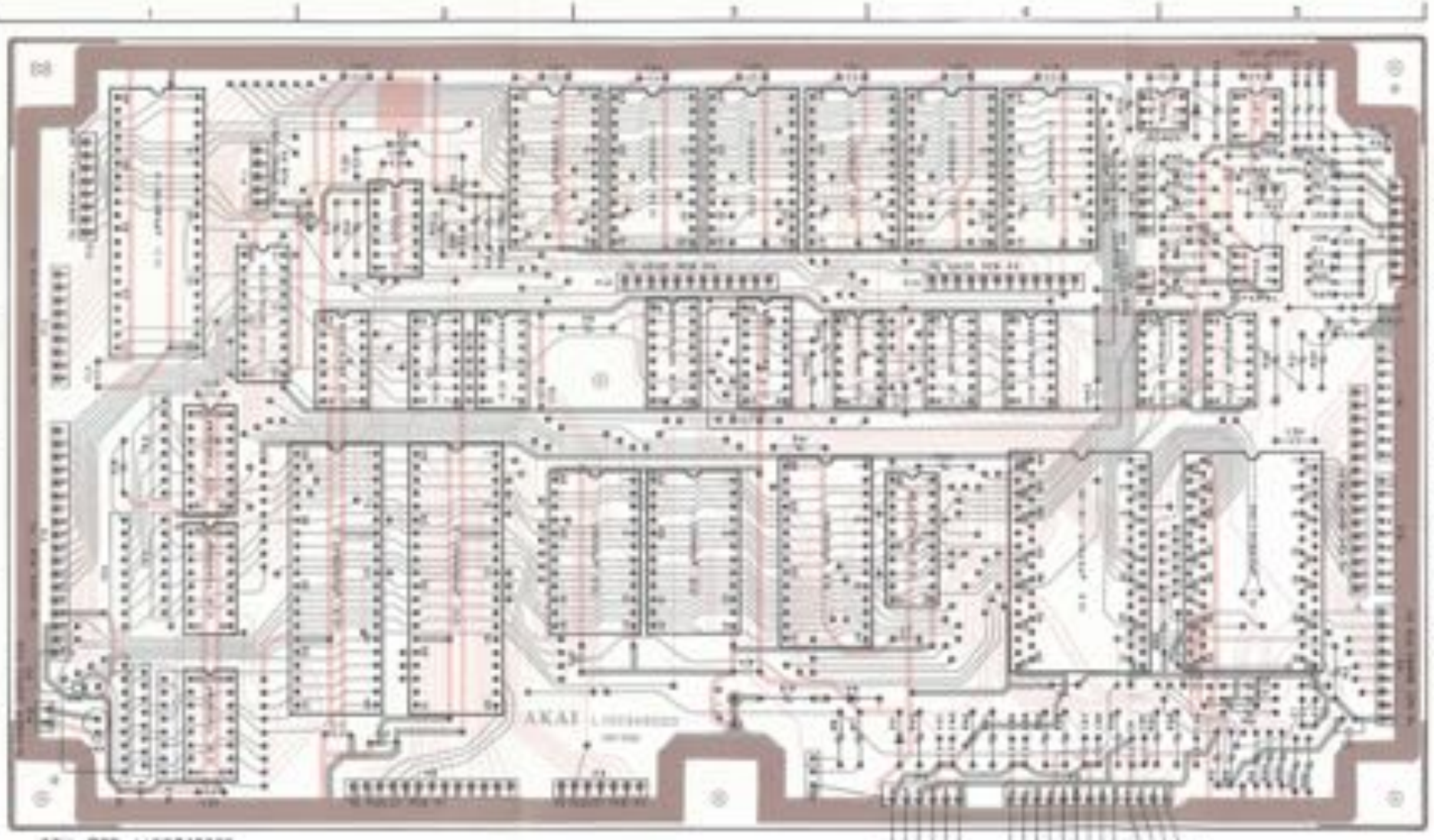


FLD (2) PCB L10034515A



FLD(1) PCB L10034510A


AX80
OPERATION(1)
SCHEMATIC DIAGRAM
NO. 8-4 850312A




CPU PCB LI00345020

LOCATION OF COMPONENTS

TR

TR1.....DC

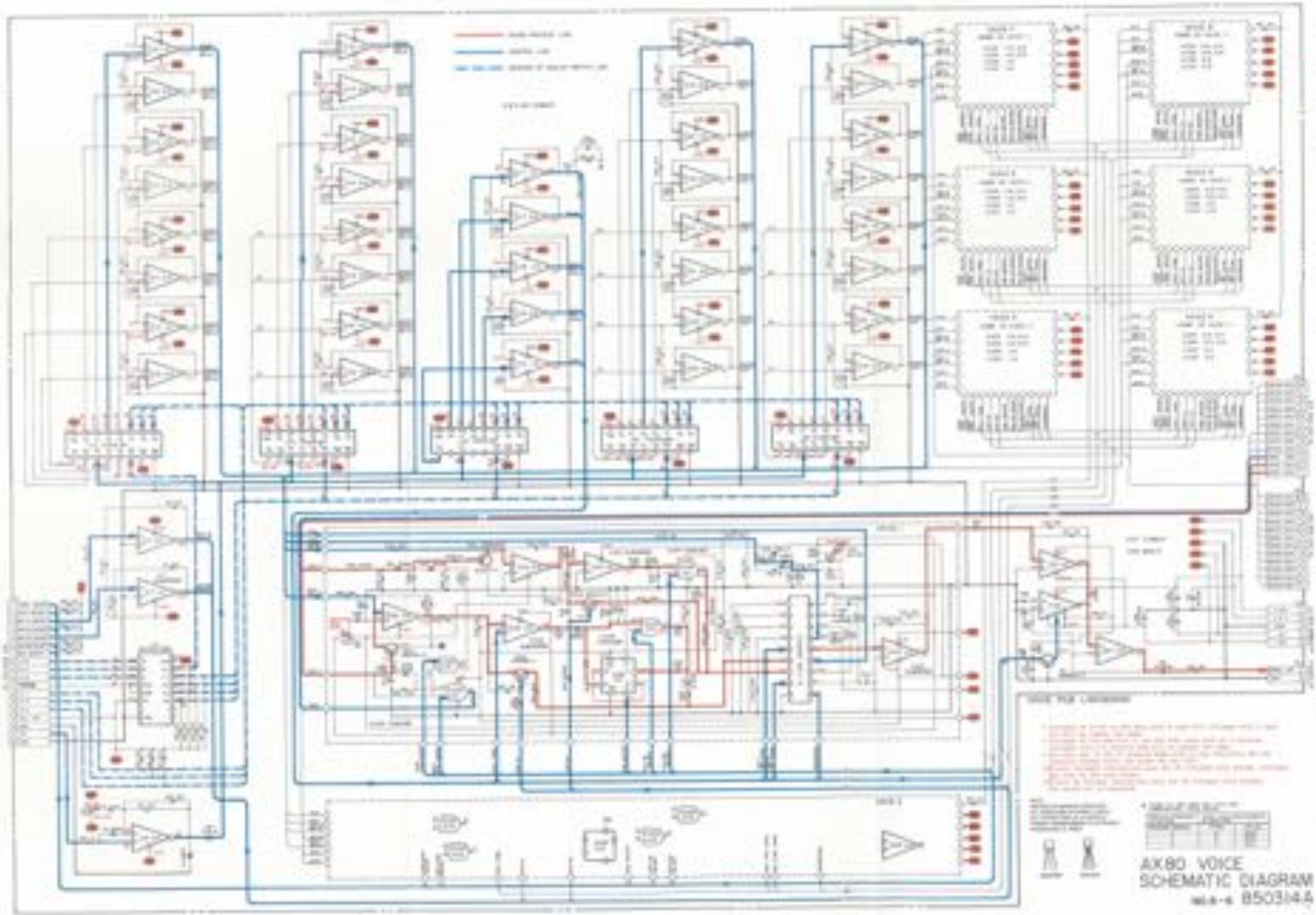
DCs

DC1.....A5
DC2,3.....A4
DC4 to 6.....B5
DC9,10.....C2
DC11,12.....A1
DC13,18.....B1
DC15.....C1
DC16.....B3
DC17.....A2
DC18,19.....A4
DC20,21.....A4
DC22 to 24.....A3
DC25.....A2
DC26.....B5
DC27.....A3
DC28 to 31.....A2
DC32.....B5

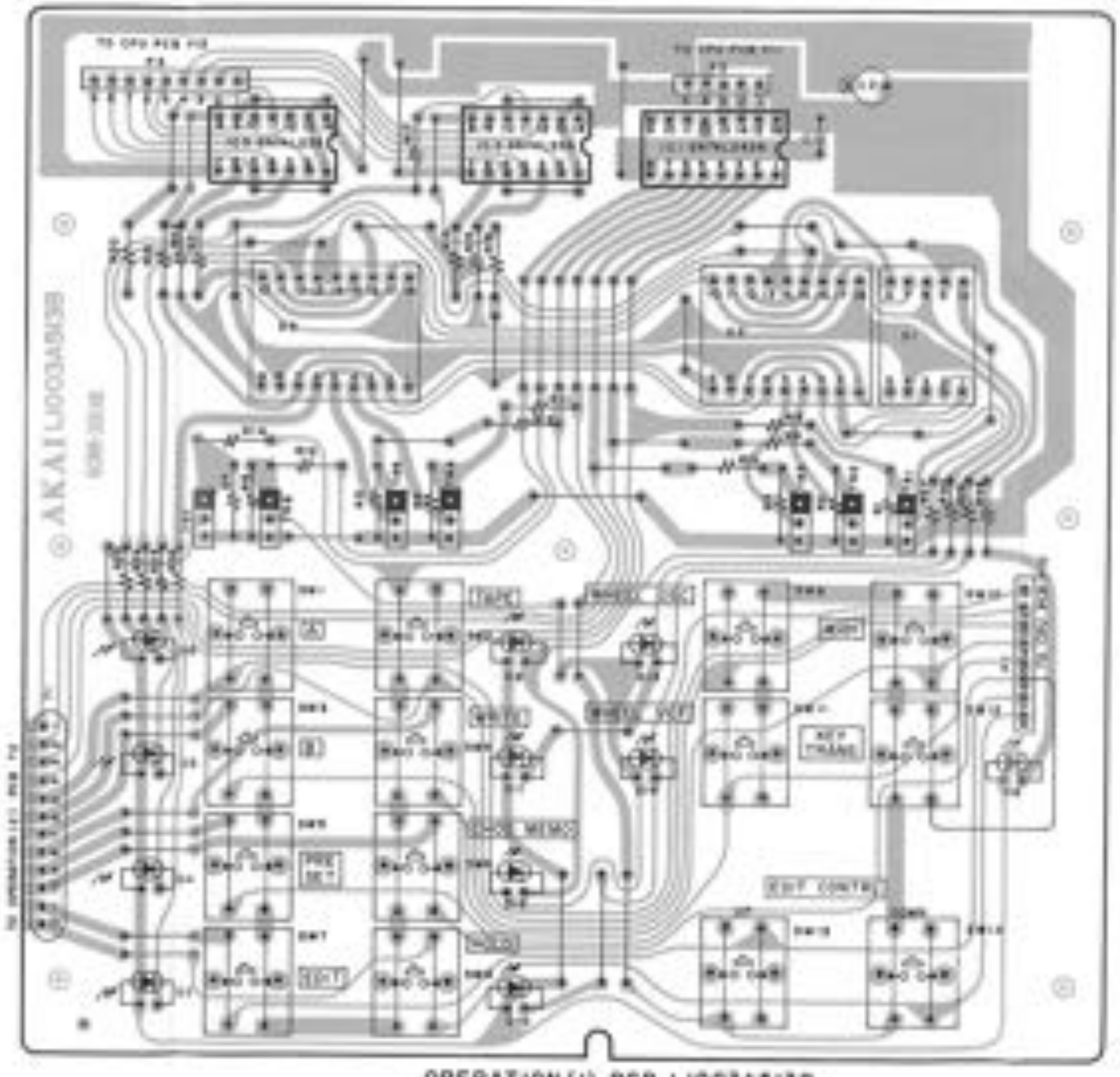
COMMUTOR

P1.....B5
P2.....C3
P3,4.....C4
P5.....A4
P6.....A5
P7.....A3
P8.....C3
P9.....C3
P10,11.....A1
P12.....B5
P13.....A4
P14.....A3
P15.....C1
P16.....A2
P17.....A4

* THIS UNIT EMPLOYS A LITHIUM BATTERY FIL MEMORY BACK UP DO NOT OVER HEAT IT WITH A SOLDERING IRON TO AVOID EMPLOSION



AX80 VOICE
SCHEMATIC DIAGRAM



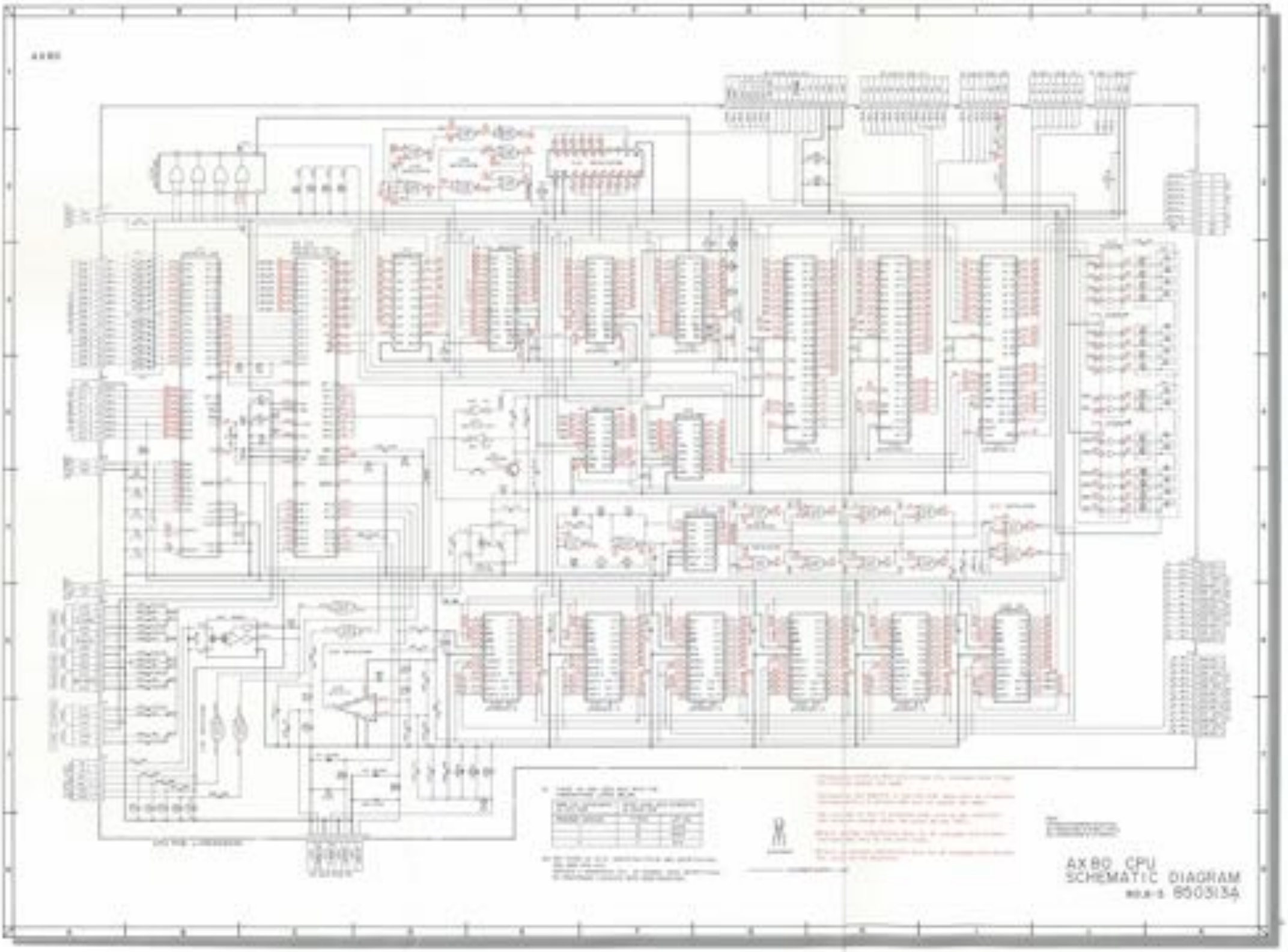
OPERATION (I) PCB LIC03A513B

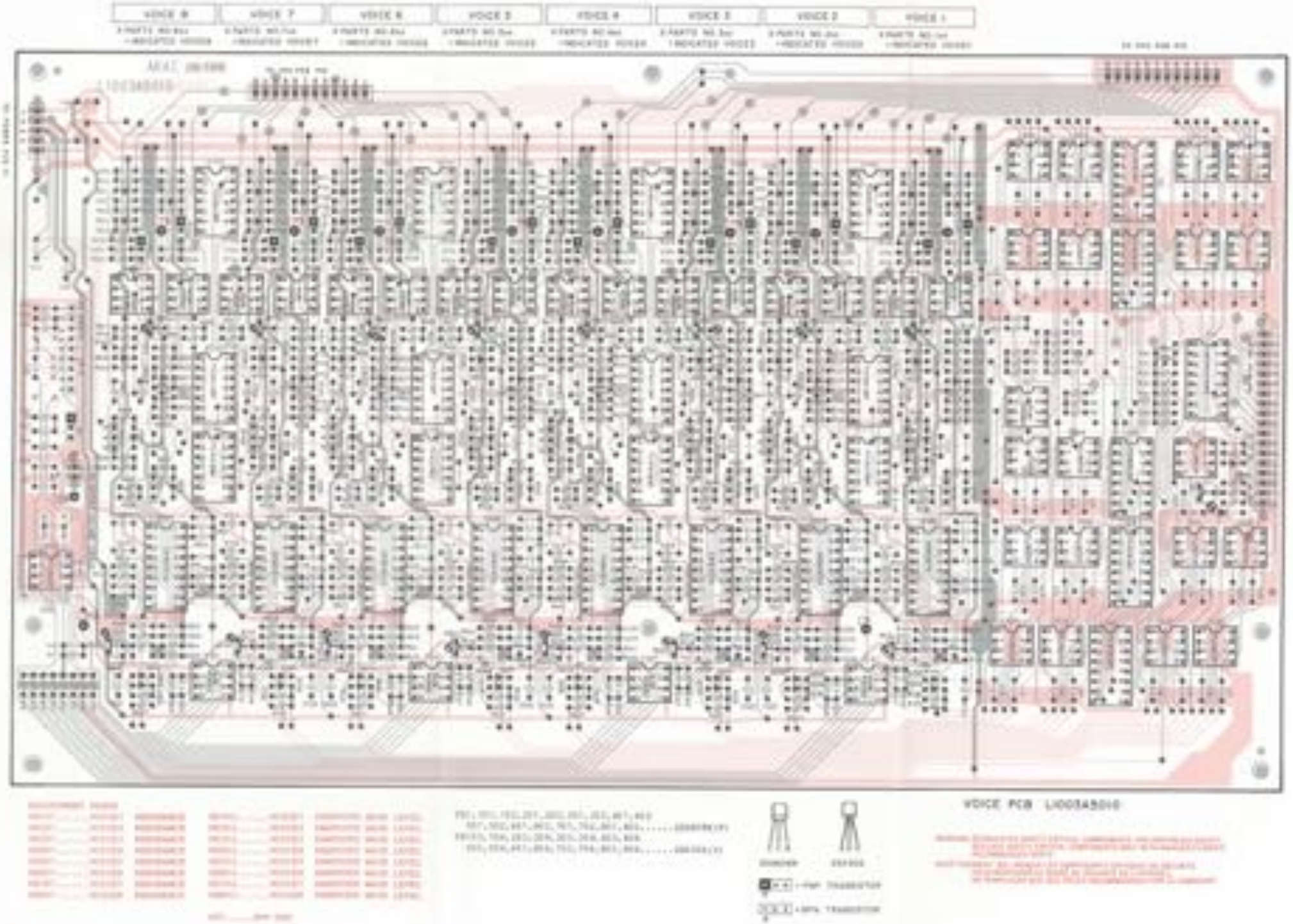
PNP TRANSISTER

TR1 to 7 2SA608K-NP

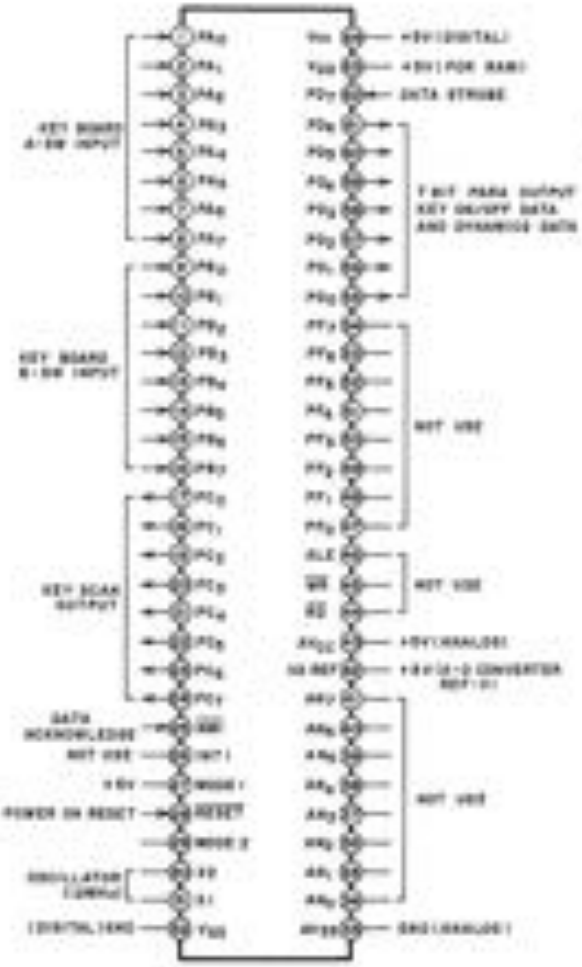
E C B

2SA608K-NO


AX80 CPU
SCHEMATIC DIAGRAM
8003134


VOICE 8
VOICE 7
VOICE 6
VOICE 5
VOICE 4
VOICE 3
VOICE 2
VOICE 1
VOICE PCB L1003A5010

μPD7811G-144 (CPU PCB-IC1)



μPD781G-119 (CPU PCB-IC2)
μPD781G-144

# SECTION 4

# SERVICE BULLETIN

- This section describes the information on techniques revisions and troubleshooting for servicing and adjusting AX80.
- To maintain the performance of **AX80**, see also **AX80** Service Manual for servicing and adjustment.
- Further technical information will be issued as any arises.
  Keep such information carefully under the name of this file.

0092

This Manual is FOR INTERNAL USE ONLY and must not be made available to unauthorized personal. No part of this manual may be reproduced in any form without permission from AKAI ELECTRIC CO., LTD., Tokyo, Japan.

MODEL: AX00

# INDEX

| Bulletin No. | Subject No. | Description |
|---|---|---|
| AX00/1 | 001 | Change of Voice Control IC |
| | 002 | IC TC4013BP name change |

MODEL: AX60 No. AX60/1 DATE: April 1985

001 Subject: To improve performance

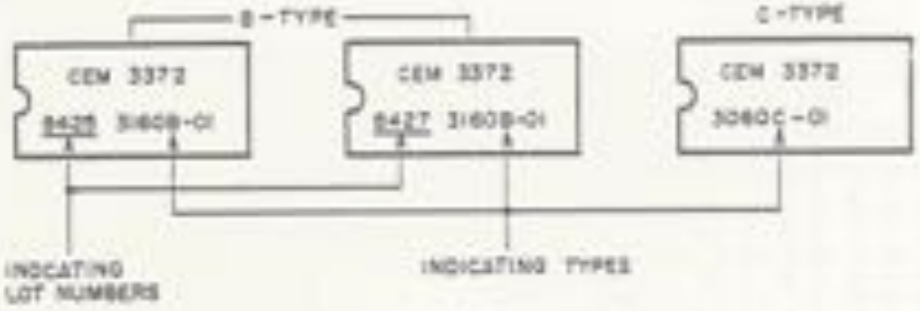
To improve sound quality, Voice Control IC (IC106 - 806 in Voice P.C. Board) CEM3372B has been changed to CEM3372C. The program of ROM IC (IC4 in CPU P.C. Board) uPD2764D-I has also been changed to uPD2764D-K.

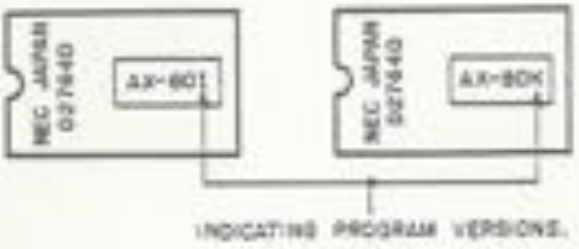
| | IC106 - 806 | Part No. | IC4 | Part No. |
|---|---|---|---|---|
| Old | CEM3372B | EI-354184 | uPD2764D-I | EI-354145 |
| New | CEM3372C | EI-359630 | uPD2764D-K | EI-359631 |

When one of Voice Control IC is changed from Old type to New type and vise versa, it is necessary to replace all Voice Control ICs and ROM IC at the same time.

Changed from : January 1985
Interchangeability : Not interchangeable

The following shows how to identify old and new ICs.



MODEL: AX80 No. AX80/1 DATE: April 1985

002 Subject: Parts information

Change of Part Name.
Because of the new type IC TC4013BP production, the IC manufacture has changed the name of old type IC TC4013BP to TC4013BAP. Old type IC TC4013BP and IC TC4013BAP are interchangeable.

Since old type TC4013BP and new type TC4013BP function differently, IC itself can not be substituted. However, this change should not affect the operation of AX80 even when a new TC4013BP is installed.

The new type IC can be identified by its Lot Number. The letter "B" will be added to its Lot Number.

| | |
|---|---|
| Old type TC4013BP | 8501H |
| New type TC4013BP | 8522HB |

The chart below shows the difference of their function.

OLD
TRUTH TABLE
TC4013BP

| INPUTS | | | | OUTPUTS | |
|---|---|---|---|---|---|
| CL | PR | D | CP△ | Qn+1 | $\overline{Q}_{n+1}$ |
| L | H | * | * | H | L |
| H | L | * | * | L | H |
| H | H | * | * | L | H |
| L | L | L | ↑ | L | H |
| L | L | H | ↑ | H | L |
| L | L | * | ↓ | $Q_n^*$ | $\overline{Q}_n^*$ |

* : Don't Care
△ : Level Change
* : No Change

NEW
TRUTH TABLE
TC4013BP

| INPUTS | | | | OUTPUTS | |
|---|---|---|---|---|---|
| CL | PR | D | CP△ | Qn+1 | $\overline{Q}_{n+1}$ |
| L | H | * | * | H | L |
| H | L | * | * | L | H |
| H | H | * | * | H | H |
| L | L | L | ↑ | L | H |
| L | L | H | ↑ | H | L |
| L | L | * | ↓ | $Q_n^*$ | $\overline{Q}_n^*$ |

* : Don't Care
△ : Level Change
* : No Change

MODEL: AX80

INDEX

| Bulletin No. | Subject No. | Description |
|---|---|---|
| AX80/1 | 001 | Change of Voice Control IC |
| | 002 | IC TC4013BP name change |
| AX80/2 | 003 | For easier Voice P.C. B. adjustment |
| | 004 | Pitch bend, modulation VR change |
| | 005 | For easier Cut-off frequency adjustment |
| | 006 | Sub OSC oscillation countermeasure |
| | 007 | Osc X'tal costdown |
| | 008 | IC change information |
| | 009 | Parameter change in Edit mode countermeasure |
| AX80/3 | 010 | Phone Amp Oscillation countermeasure |
| | 011 | Change of Voice Control IC and operation ROM IC. |

No. AX-80/2 DATE: May 1985

MODEL: AX-80

009 Subject: Trouble countermeasure

To eliminate the problem of changing parameter in Edit mode by itself, especially on unit with IC uPD7811G-144 as IC2 on CPU P.C. Board, R4 on CPU P.C. Board has been changed from 150 to 82 FS.

| Ref. No. | Prev. | New | Description |
|---|---|---|---|
| R-R4 | 150 | 82 FS 1/4W | ER-322421 |

Changed from : Februaly 1985
Service Ref. No. : SX-5066/X-706-85

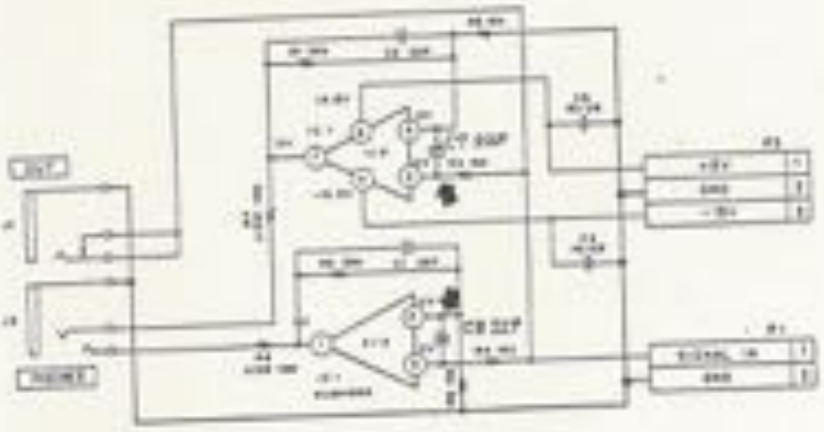
No. AX80/3 DATE: August 1985

MODEL: AX80

010 Subject: Trouble countermeasure

Symptom : Oscillation in Phone Amp in Jack P.C. Board.
Countermeasure : A capacitor has been added in Phone Amp.

| Ref. No. | Description |
|---|---|
| R-C72, 82 | C CE 220J 50DC |



Changed from : June 1985
Service Ref. No. : CMA0552

MODEL: AX80 No. AX80/3 DATE: August 1985

011 Subject: Parts information

Because of the discontinuation of IC manufacture, IC CEM3372C in Voice P.C. Board has been changed to IC CEM3372D.
Accordingly, the program version of Operation ROM IC UPD27640 in CPU P.C. Board has also been changed from K version to L version.

| | Ref. No. | Part No. | Description |
|---|---|---|---|
| (PREV.) | 2-IC106B-806B | EI-359630 | IC CEM3372C |
| (NEW) | 2-IC106I-806I | EI-363530 | IC CEM3372D |
| (PREV.) | 3-IC4B | EI-359631 | IC UPD27640 (K TYPE) |
| (NEW) | 3-IC4I | EI-363531 | IC UPD27640 (L TYPE) |

NOTE : IC CEM3372D has to be paired with IC UPD27640 (L TYPE) for proper operaion.
A/B Bank Sound Data are interchangeable.

Changed from : July 1985
Service Ref. No. : CNL0053

MODEL: AX-80

INDEX

| Bulletin No. | Subject No. | Description |
|---|---|---|
| AX-80/1 | 001 | Change of Voice Control IC |
| | 002 | IC TC4013BP name change |
| AX-80/2 | 003 | For easier Voice P.C. B. adjustment |
| | 004 | Pitch Bend, Modulation VR change |
| | 005 | For easier Cut-off frequency adjustment |
| | 006 | Sub OSC oscillation countermeasure |
| | 007 | Osc X'tal costdown |
| | 008 | IC change information |
| | 009 | Parameter change in Edit mode countermeasure |

MODEL: AX-80 No. AX-80/1 DATE: April 1985

001 Subject: To improve performance

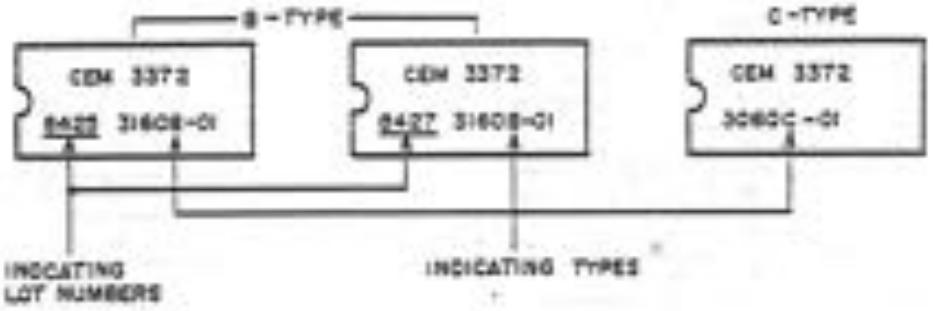
To improve sound quality, Voice Control IC (IC106 - 806 in Voice P.C. Board) CEM3372B has been changed to CEM3372C. The program of ROM IC (IC4 in CPU P.C. Board) uPD2764D-I has also been changed to uPD2764D-K.

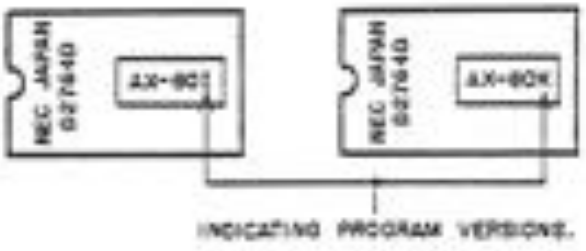
| | IC106 - 806 | Part No. | IC4 | Part No. |
|---|---|---|---|---|
| Old | CEM3372B | EI-354184 | uPD2764D-I | EI-354145 |
| New | CEM3372C | EI-359630 | uPD2764D-K | EI-359631 |

When one of Voice Control IC is changed from Old type to New type and vise versa, it is necessary to replace all Voice Control ICs and ROM IC at the same time.

Changed from : January 1985
Interchangeability : Not interchangeable

The following shows how to identify old and new ICs.



MODEL: AX-80 No. AX-80/1 DATE: April 1985

002 Subject: Parts information

Change of Part Name.
Because of the new type IC TC4013BP production, the IC manufacture has changed the name of old type IC TC4013BP to TC4013BAP. Old type IC TC4013BP and IC TC4013BAP are interchangeable.

Since old type TC4013BP and new type TC4013BP function differently, IC itself can not be substituted. However, this change should not affect the operation of AX-80 even when a new TC4013BP is installed.

The new type IC can be identified by its Lot Number. The letter "B" will be added to its Lot Number.

| | |
|---|---|
| Old type TC4013BP | 8501H |
| New type TC4013BP | 8522HB |

The chart below shows the difference of their function.

OLD
TRUTH TABLE
TC4013BP

| INPUTS | | | | OUTPUTS | |
|---|---|---|---|---|---|
| CL | PR | D | $CP_\Delta$ | $Q_{n+1}$ | $\bar{Q}_{n+1}$ |
| L | H | * | * | H | L |
| H | L | * | * | L | H |
| H | H | * | * | L | H |
| L | L | L | ↓ | L | H |
| L | L | H | ↓ | H | L |
| L | L | * | ↑ | $Q_n$ | $\bar{Q}_n$ |

* : Don't Care
Δ : Level Change
· : No Change

NEW
TRUTH TABLE
TC4013BP

| INPUTS | | | | OUTPUTS | |
|---|---|---|---|---|---|
| CL | PR | D | $CP_\Delta$ | $Q_{n+1}$ | $\bar{Q}_{n+1}$ |
| L | H | * | * | H | L |
| H | L | * | * | L | H |
| H | H | * | * | H | H |
| L | L | L | ↓ | L | H |
| L | L | H | ↓ | H | L |
| L | L | * | ↑ | $Q_n$ | $\bar{Q}_n$ |

* : Don't Care
Δ : Level Change
· : No Change

MODEL: AX-80 No. AX-80/2 DATE: May 1985

003 Subject: To improve performance

For the ease of the adjustment on Voice P.C. Board, the following parts have been changed.

| Ref. No. | Previous | New |
|---|---|---|
| 2-R105-805 | 10K | 100K CB. |
| 2-R124-824 | 10K | 100K CB. |
| 2-R139-839 | 300K (F) | 750K CB. |
| 2-R144-844 | 30K (F) | 33K CB. |

Changed from : Nov. 1984
Service ref. no. : BB-5406X, BB-5621X

MODEL: AX-80 No. AX-80/2 DATE: May 1985

004 Subject: Parts information

The following parts have been changed for the standardization of parts. VR905 PITCH BEND, VR906 MODULATION.

| Ref. No. | Part No. | Description |
|---|---|---|
| 13-VR905, 906 | Prev. EV-354255 | VR ROTARY 16L10B0V B103 |
| | New EV-356043 | VR ROTARY 16L10X0X B103 |

Changed from : Nov. 1984
Service ref. no. : 88-5579X

MODEL: AX-80 No. AX-80/2 DATE: May 1985

005 Subject: To improve performance

For the ease of Cut-off Frequency adjustment, R139-839 on Voice P.C. Board have been changed from 750K to 680K.

| Ref. No. | Previous | New |
|---|---|---|
| 2-R139-839 | 750K | 680K |

Changed from : Dec. 1984
Service ref. no. : 88-5945X

MODEL: AX-80 No. AX-80/2 DATE: May 1985

006 Subject: Trouble countermeasure

To prevent the oscillation of Sub OSC, C110-810 on Voice P.C. Board have been changed form 33pF to 56pF.

| Ref. No. | Part No. | Description |
|---|---|---|
| 2-C110-810 | RC-200488 | C CE V F05 CH 560J 50DC |

Changed from : Jan. 1985
Service ref. no. : 88-6124X

MODEL: AX-80 No. AX-80/2 DATE: May 1985

007 Subject: Parts information

The Oscillation X'tal X2 on CPU P.C. Board has been changed for the costdown purpose.

| Ref. No. | Part No. | | Description |
|---|---|---|---|
| 3-X2 | Prev. | EI-354160 | OSC X'TAL HC-16 6.5548MHz |
| | | EI-358944 | OSC X'TAL NR-18 6.5548MHz |
| | New | EI-358966 | OSC X'TAL NR-18 6.5536MHz |

Changed from : Feb. 1985
Service ref. no. : BB-5895I, BB-5993I

MODEL: AX-80 No. AX-80/2 DATE: May 1985

008 Subject: Parts information

IC NJM4558D used on Voice P.C. Board has been changed to IC TL4558P, for the standardization of parts.

| Ref. No. | Part No. | | Description |
|---|---|---|---|
| 2-IC7<br>2-IC101-801<br>2-IC102-802<br>2-IC107<br>2-IC307<br>2-IC507<br>2-IC707 | Prev. | EI-213390 | IC NJM4558D |
| | New | EI-338502 | IC TL4558P |

IC Socket for IC TL4558P has been added for IC-101-801

| Ref. No. | Part No. | Description |
|---|---|---|
| 2-S13-20 | EJ-359147 | Socket IC DILB 8P-EJ |

Changed from : Feb. 1985
Interchangeability : IC NJM4558D and IC TL4558P should not be used combined, since it might cause the imbalance of the output between Voices.
Service ref. no. : BB-6356X, BB-6207X

MODEL: AX-80 No. AX-80/2 DATE: May 1985

009 Subject: Trouble countermeasure

To eliminate the problem of changing parameter in Edit mode by itself, especially on unit with IC uPD7811G-144 as IC2 on CPU P.C. Board, R4 on CPU P.C. Board has been changed from 150 to 82 FS.

| Ref. No. | Prev. | New | Description |
|---|---|---|---|
| J-R4 | 150 | 82 FS 1/4W | ER-J22421 |

Changed from : Februaly 1985
Service Ref. No. : SS-5046/X-706-85

**AKAI ELECTRIC CO., LTD.**

12-14, 2-Chome, Higashi-Kojiya, Ohta-Ku, Tokyo, Japan
TEL. Tokyo (162) 5111 CABLE: HIFIAKAI TOKYO TELEX: J26261
Printed No. 850472-01-1000 Printed Date: JUNE 10,1985
Printed in Japan